TC-WR610

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model

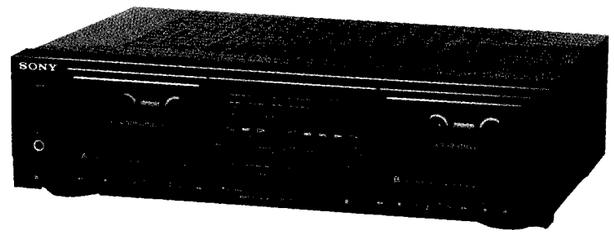

Photo: US, Canadian Model

SPECIFICATIONS

Recording system
4-track 2-channel stereo
Fast winding time
Approx. 90 sec. (with HF-60 cassette)
Bias AC Bias
Signal-to-noise ratio (NAB, at peak level)

Cassette \ Dolby NR switch	OFF	B-TYPE ON	C-TYPE ON
TYPE IV (Sony METAL-ES)	58 dB	65 dB	71 dB
TYPE II (Sony UX-S)	57 dB	64 dB	70 dB
TYPE I (Sony HF-S)	54 dB	61 dB	67 dB

Total harmonic distortion
1.0 % (with Sony METAL-ES cassettes)

Frequency response (DOLBY NR OFF)

TYPE IV cassette (Sony METAL-ES)	30–15,000 Hz (±3 dB) 30–13,000 Hz (0VU recording)
TYPE II cassette (Sony UX-S)	30–15,000 Hz (±3 dB)
TYPE I cassette (Sony HF-S)	30–14,000 Hz (±3 dB)

Wow and flutter 0.09% WRMS (NAB)

Inputs

Line inputs (phono jacks)	Sensitivity	77.5 mV (–20 dB)
	Input impedance	50k ohms

Outputs

Line outputs (phono jacks)	Rated output level	0.44 V (–5 dB) at a load impedance 47k ohms
	Load impedance	Over 10k ohms
Headphone output (stereo phone jack)	Output level	0–0.3 mW at a load impedance of 32 ohms

Model Name Using Similar Mechanism	TC-WR9ES TC-WR800
Tape Transport Mechanism Type	deck A: TCM-170RA2
	US, Canadian model deck B: TCM-170RB6
	AEP, UK model deck B: TCM-170RB15

General
Power requirements
120 V AC, 60 Hz (US, Canadian Model)
220 V AC, 50/60 Hz (AEP Model)
240 V AC, 50/60 Hz (UK Model)
Power consumption
26 watts
Dimensions Approx. 430×118×275 mm (w/h/d)
(17×4¾×10⅞ inches)
including projecting parts and controls
Weight Approx. 4.3 kg (9 lbs 8 oz)

Supplied accessory
Audio connecting cord (2)

Design and specifications subject to change without notice.

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
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MICROFILM

STEREO CASSETTE DECK

SONY®

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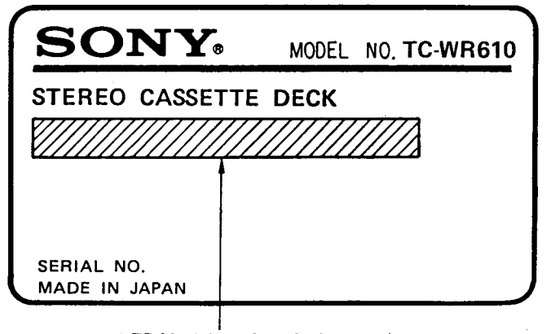
MODEL IDENTIFICATION

– Specification Label –



AEP Model: AC: 220 V ~ 50/60 Hz 26 W
UK Model: AC: 240 V ~ 50/60 Hz 26 W
US, Canadian Model: AC: 120 V 60 Hz 26 W

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

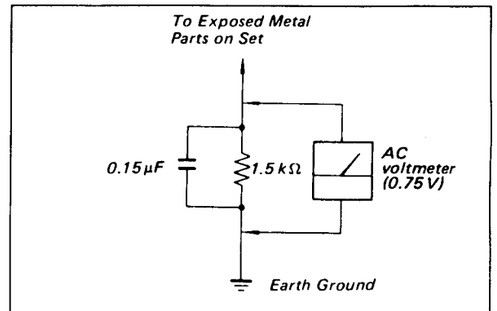


Fig. A. Using an AC voltmeter to check AC leakage.

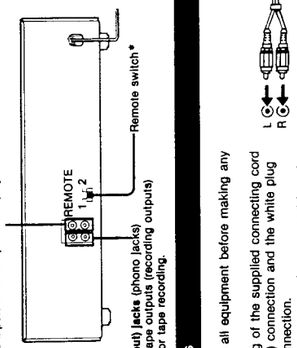
ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SECTION 1
GENERAL

Connections

Identification of Rear Panel Parts



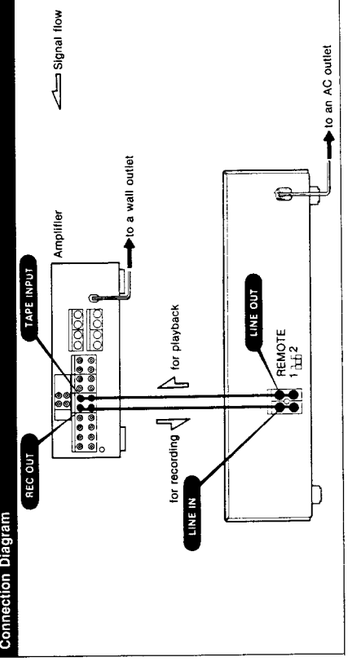
LINE OUT (line output) jacks (phono jacks)
Connect to the tape inputs of an amplifier for playback.

LINE IN (line input) jacks (phono jacks)
Connect to the tape output (recording outputs) of an amplifier for tape recording.

Notes on Connections

- Turn off the power to all equipment before making any connection.
- Note that the red plug of the supplied connecting cord is for right-channel (R) connection and the white plug for left-channel (L) connection.
- The connecting cords should be fully inserted into the jacks. A loose connection may cause hum pick-up.

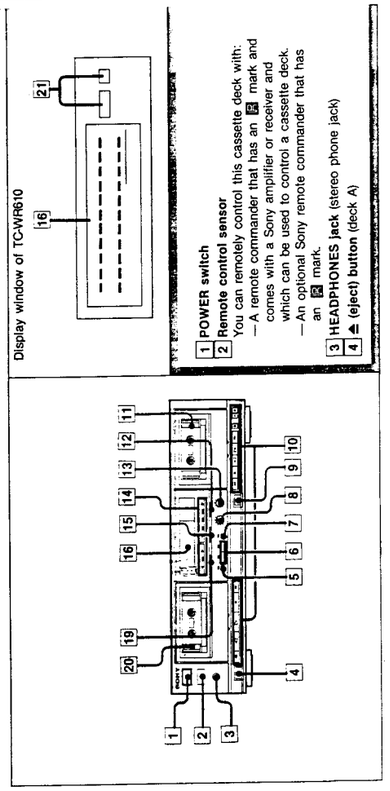
Connection Diagram



***REMOTE switch**
If you have a remote commander supplied with a Sony receiver or amplifier, you can control both decks by using the A/B deck selector.
However, if your commander is not equipped with an A/B deck selector and controls only deck A, setting this switch will allow you to control both decks.

To do this, first **turn the power off**, then set the switch to REMOTE 2. (Under this setting, the commander controls the deck in which a cassette is loaded. If both decks are loaded, it controls only deck B.)

Identification of Front Panel Parts



1 2 Remote control sensor
You can remotely control this cassette deck with:
—A remote commander that has an RC mark and comes with a Sony amplifier or receiver and which can be used to control a cassette deck.
—An optional Sony remote commander that has an RC mark.

1 POWER switch

3 HEADPHONES jack (stereo phone jack)

4 ▲ (eject) button (deck A)

11 Cassette holder (deck B)

12 TAPE (DECK B) selector (deck B only)

13 REC LEVEL (recording level) control

14 Tape operation buttons and direction mode indicators

15 DOLBY NR switch

16 PEAK LEVEL METERs

19 DIR (direction) MODE selector

20 Cassette holder (deck A)

21 TAPE COUNTER and RESET button (deck B only)

5 AMS (Automatic music sensor)/BLK (blank) SKIP button and indicator

6 SYNCHRO DUBBING button and indicators
HIGH SPEED/NORMAL SPEED

7 AUTO PAUSE button and indicator

8 BALANCE control
Adjusts the balance of right and left channels during recording.

9 ▲ (eject) button (deck B)

10 Tape operation buttons
◀◀ (left fast winding) button
▶▶ (rightward fast winding) button
△ (forward play) button
▽ (reverse play) button
■ (stop) button
● (REC (RECORD) button (deck B only)
II PAUSE button (deck B only)
○ REC MUTE (record muting) button (deck B only)

Troubleshooting Guide

Before proceeding with these trouble checks, first check these basic points:
- The power cord is firmly connected.
- Amplifier connections are firmly made.
- Heads, capstans and pinch rollers are clean.
- The amplifier controls and switches are set correctly.

Function buttons and tape transport problems		
Symptom	**Cause**	**Remedy**
Function buttons do not activate.	Cassette holder is not fully closed.	Close the holder completely.
● button does not activate.	No cassette in the holder.	Insert a cassette.
	Tab has been removed from the cassette.	Cover the hole with plastic tape.
Automatic shut-off mechanism activates before the tape comes to its end.	Tape is slack.	Take up the tape slack.
	Cassette shell is deformed.	Use another cassette.
	The inside of the cassette holder is illuminated by strong light.	Remove the light source.
Excessively loud tape transport noise during fast winding	This depends on the cassette used and is not a problem.	—

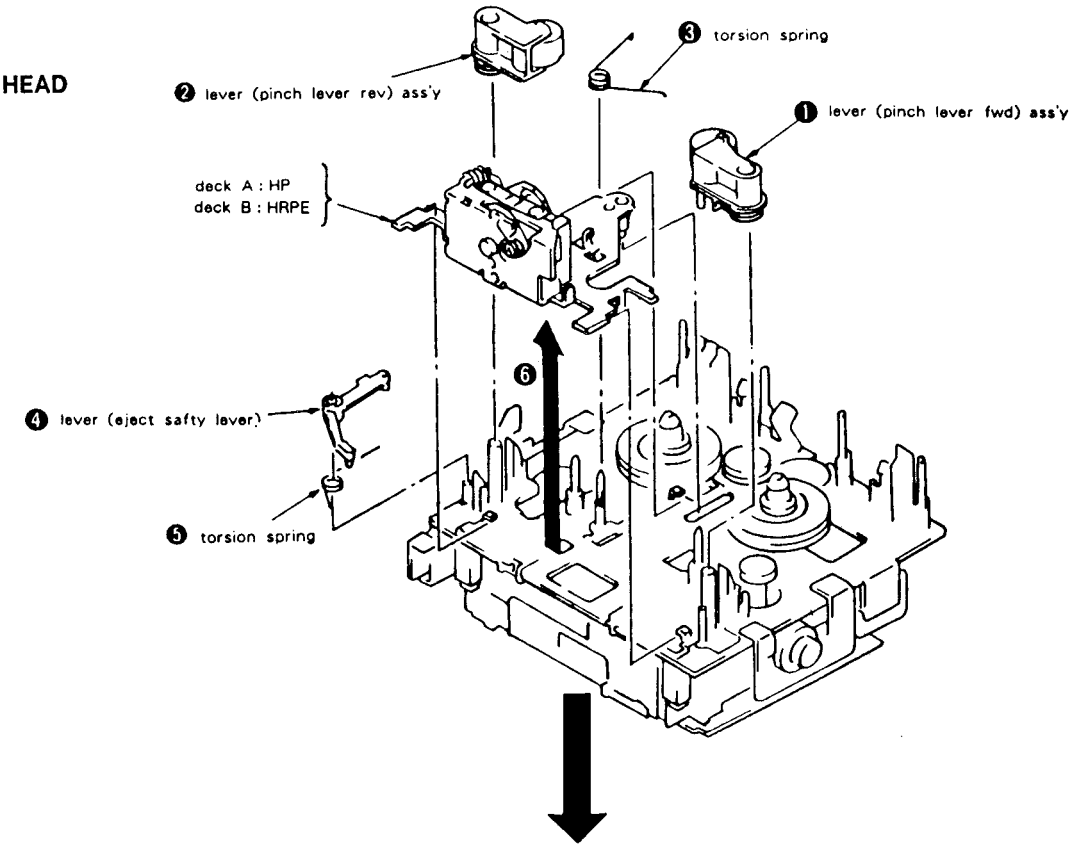
Recording and playback problems		
Symptom	**Cause**	**Remedy**
Auto reverse function does not operate.	DIR MODE selector is set to ⇀ ↽	Set DIR MODE to ⇀ ↽.
Recording or playback cannot be made or there is a decrease in sound level.	Record/playback and erase heads are either dirty or magnetized.	Clean or demagnetize the heads.
	Improper connection	Make connections properly.
	Improper setting of the amplifier controls	Set the amplifier controls to the appropriate positions.
Excessive wow, flutter or dropout	Head, capstan or pinch roller is dirty.	Clean.
Imcomplete erasure	Erase head is dirty.	Clean the erase head.
Increased noise or poor reproduction in high frequencies	Head is magnetized.	Demagnetize the head.
Unbalanced tone in high frequencies	Improper setting of the DOLBY NR switch.	When playing back, set the switch to the same position used in recording.
	Improper setting of the TAPE selector.	If recorded with the wrong switch setting, adjust the tone controls of the amplifier in playback.
	The unit is placed near a television set.	Move the unit away from the television set.
The desired selection cannot be located even if you activate the AMS.	• There is noise in the space between selections.	—
	• The space is less than 4 seconds long.	Press ○ to insert a longer blank space.
	• The ◀◀ or ▶▶ button is pressed immediately before or after the beginning of the following selection.	—
Playback or fast winding may begin in the middle of the selection when AMS or blank skip is activated.	• The following will be treated as blanks: —a long pause in the music —a passage of low frequencies or very low volume —gradual increase or decrease in volume	—

Noise		
Symptom	**Cause**	**Remedy**
Hum noise	The unit is stacked on or under the amplifier.	Separate the units.
Noise is recorded.	Recording was made near equipment such as a television set or a color monitor, and interference has affected the recording on the tape and the Dolby NR system.	Move the unit away from television set or color monitor.

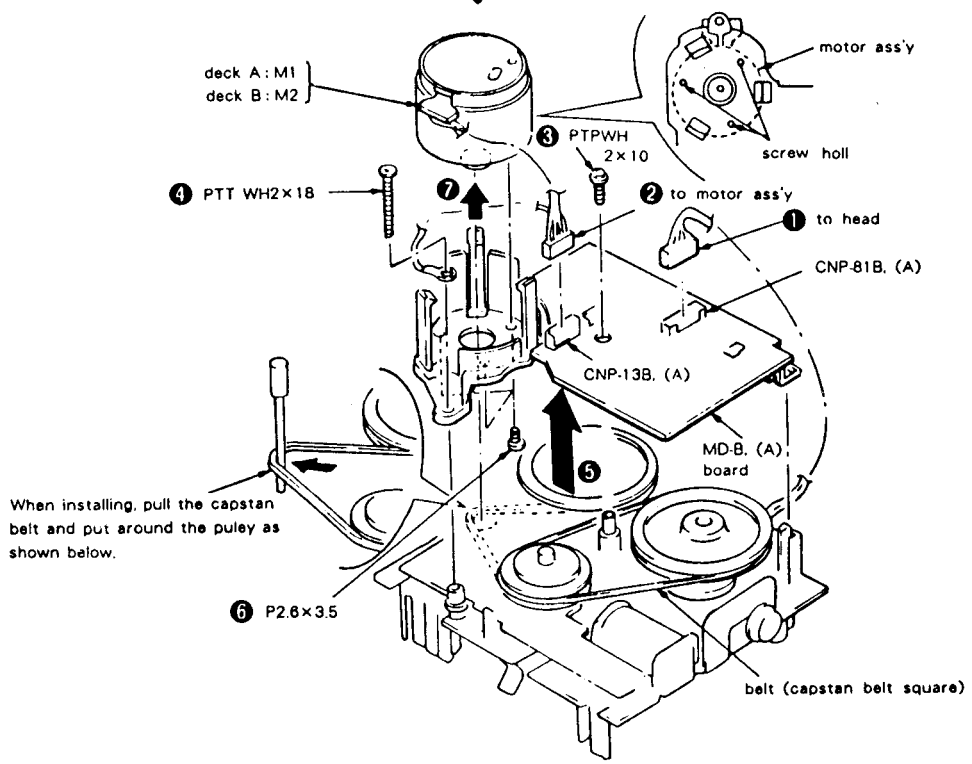
SECTION 2
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

HEAD


❸ torsion spring
❷ lever (pinch lever rev) ass'y
❶ lever (pinch lever fwd) ass'y
deck A : HP
deck B : HRPE
❻
❹ lever (eject safty lever)
❺ torsion spring

MOTOR



SECTION 3
ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

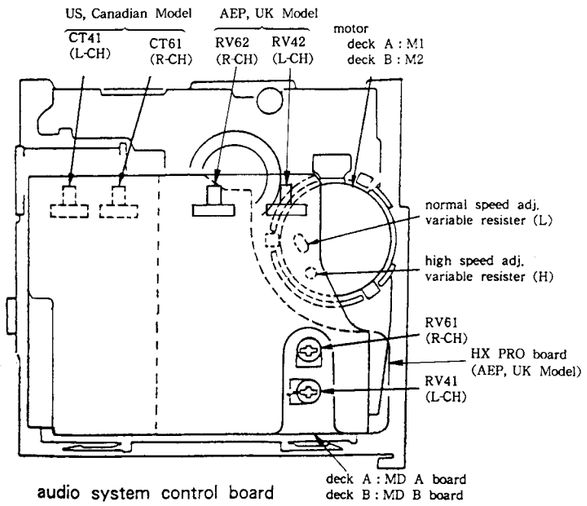
PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab :
   record/playback head　pinch roller
   erase head　rubber belts
   capstan　idler
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the perts adjusted.

Torque Measurement

Torque	Torque Meter	Meter Reading
FWD	CQ-102C	27 to 75g · cm (0.378 to 1.05 oz · inch)
FWD Back tension	CQ-102C	1 to 10g · cm (0.014 to 0.14 oz · inch)
REV	CQ-102RC	27 to 75g · cm (0.378 to 1.05 oz · inch)
REV Back Tension	CQ-102RC	1 to 10g · cm (0.014 to 0.14 oz · inch)
FF, REW	CQ-201B	95 to 165g · cm (1.33 to 2.31 oz · inch)

—Adjustment Parts Location Diagrams—



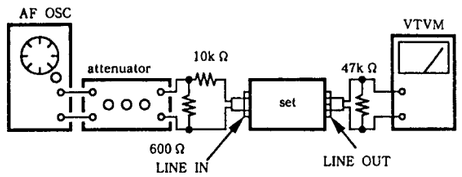
3-2. ELECTRICAL ADJUSTMENTS

Note :The adjustment should be performed in the order given in the service manual.
The adjustments should be performed for both L-CH and R-CH.

- Switches and controls should be set as follows unless otherwise specified.
  DOLBY NR switch　: OFF
  TAPE SELECT switch　: TYPE I
  DIRECTION MODE switch　: ⟶

- Standard Record :
  Deliver the standard input signal level to the input jack and set the REC LEVEL control to obtain the standard output signal level.

—Record Mode—



Standard Input Level

	LINE IN
source impedance	10k Ω
input level	0.25V (−10dB)

Standard Output Level

	LINE OUT
load impedance	47k Ω
output level	0.44V (−5dB)

- Test tape

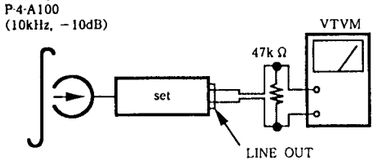
Type	Signal	Used for
P-4-A100	10kHz, −10dB	Azimuth Adjustment
P-4-L300	315Hz, 0dB	PB LEVEL Adjustment
WS-48B	3kHz, 0dB	Tape Speed Adjustment

Record/Playback Head Azimuth Adjustment

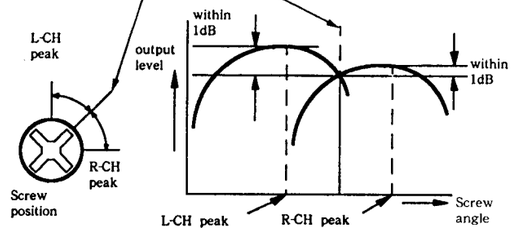
DECK A　DECK B

Procedure :

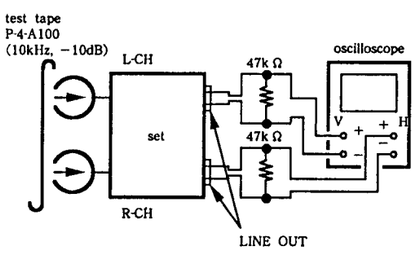
1. Mode : FWD playback



2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1dB.



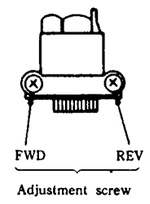
3. Phase Check
   Mode : playback



Screen pattern				
in phas	45°	90°	135°	180°
good			wrong	

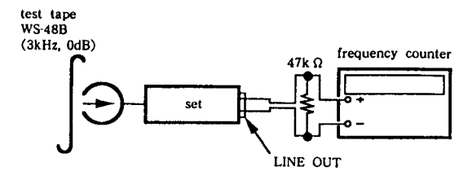
4. Set in the REV mode and repect the step 1-3.
5. After the adjustment, lock the screws with locking compound.

Adjustment Location : Record/Playback head



Tape Speed Adjustment DECK A DECK B

Procedure :
Mode : FWD playback



Perform high speed adjustment before mormal speed adjustment
Play back the test tape WS-48B and adjust to meet the specifications below.

Specifications :

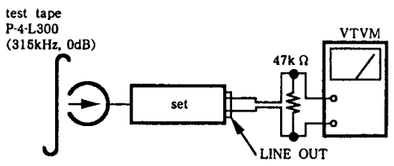
speed	deck	Adjustment part	variable resistor of motor	test pin CN811	frequency countor reading
high	A	M1	(H)	short	5,960±30
	B	M2	(H)		
normal	A	M1	(L)	open	2,980±15
	B	M2	(L)		

Frequency difference between the beginning and the end of the tape should be within 3%.
Frequency difference between deck A and deck B the beginning of the tape should be within 1.5%.

Adjustment Location :
deck A : motor (M1) rear side
deck B : motor (M2) rear side

Playback Level Adjustment DECK A DECK B

Procedure :
Mode : playback



Adjust deck A : RV41A(L-CH), RV61A(R-CH) and deck B : RV41B(L-CH) , RV61B(R-CH) so that the reading on VTVM meets the specification below.
Specification :
LINE OUT level : −5±0.8dB
Level difference between channels : less than 0.5dB
Check that the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times.
Adjustment Location : audio system control board

Record Bias Ad

Setting :
REC LEVEL

Procedure :
1. Mode : record
AF OSC
attenua

2. Mode : playba
recorded portion

Confirm that the
ralative to the 31
CH), CT61 (R-CH)
RV62 (R-CH) (AEP
above.
Adjustment Locat

Record Level A

Setting :
REC LEVEL

Procedure :
1. Mode : record
AF OSC
attenua

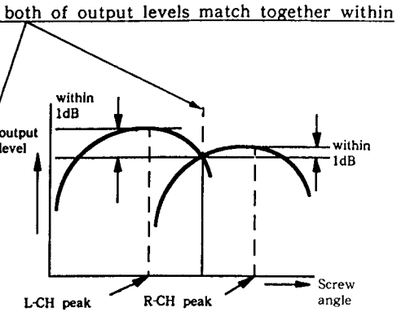
2. Mode : playba
recorded portion

3. Play back the
Confirm that t
below. If neces
and repeat th

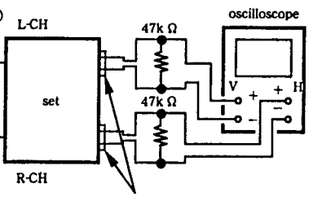
Specification : LIN

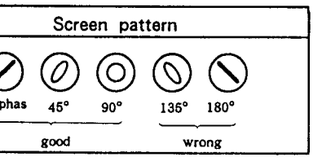
Adjustment Locat

djustment screw for the maximum output
ese levels do not match, turn the adjustment
both of output levels match together within



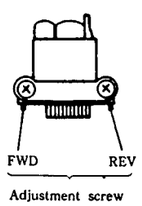
k
back





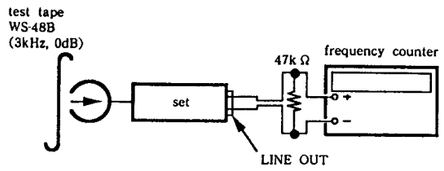
REV mode and repect the step 1-3.
adjustment, lock the screws with locking

ation : Record/Playback head



Tape Speed Adjustment DECK A DECK B

Procedure :
Mode : FWD playback



Perform high speed adjustment before mormal speed adjustment
Play back the test tape WS-48B and adjust to meet the specifications below.

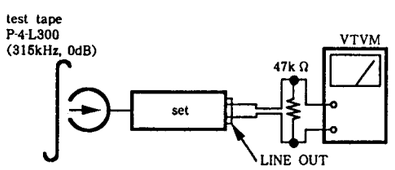
Specifications :

speed	deck	Adjustment part	variable resistor of motor	test pin CN811	frequency countor reading
high	A	M1	(H)	short	5,960±30
	B	M2	(H)		
normal	A	M1	(L)	open	2,980±15
	B	M2	(L)		

Frequency difference between the beginning and the end of the tape should be within 3%.
Frequency difference between deck A and deck B the beginning of the tape should be within 1.5%.

Adjustment Location :
deck A : motor (M1) rear side
deck B : motor (M2) rear side

Playback Level Adjustment DECK A DECK B
Procedure :
Mode : playback

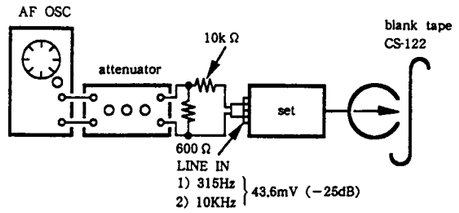


Adjust deck A : RV41A(L-CH), RV61A(R-CH) and deck B : RV41B(L-CH) , RV61B(R-CH) so that the reading on VTVM meets the specification below.
Specification :
LINE OUT level : −5±0.8dB
Level difference between channels : less than 0.5dB
Check that the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times.
Adjustment Location : audio system control board

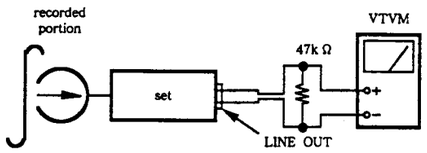
Record Bias Adjustment DECK B

Setting :
REC LEVEL control : standard record (See page 6.)

Procedure :
1. Mode : record



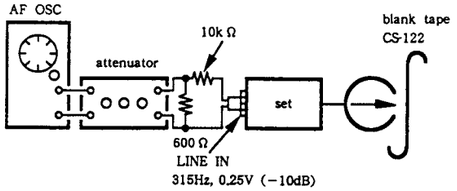
2. Mode : playback



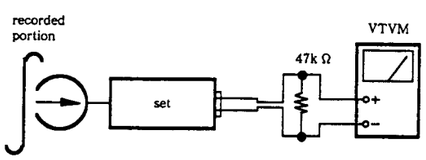
Confirm that the 10kHz playback output is 0±0.5dB ralative to the 315Hz output. If necessary, adjust CT41 (L-CH), CT61 (R-CH) (US, Canadian model), and RV42 (L-CH), RV62 (R-CH) (AEP, UK model) and repeat the steps given above.
Adjustment Location : MD B board (US, Canadian model)
HX PRO board (AEP, UK model)

Record Level Adjustment DECK B
Setting :
REC LEVEL control : standard record (See page 6.)

Procedure :
1. Mode : record



2. Mode : playback



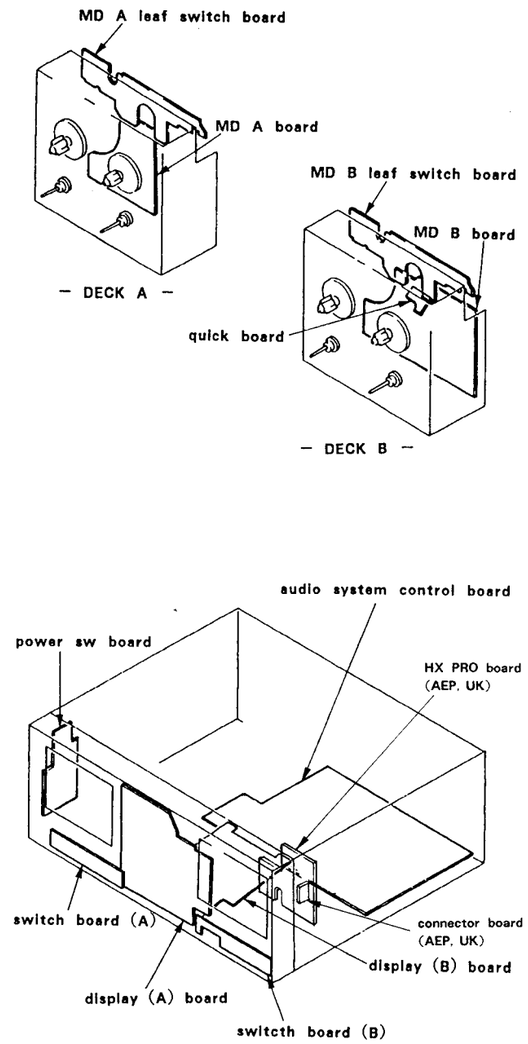
3. Play back the signal recorded in step 1.
Confirm that the signal level is within the specification below. If necessary, adjust RV103(L-CH), RV203 (R-CH) and repeat the step1-3.

Specification : LINE OUT level : −5dB±0.5dB

Adjustment Location : audio system control board

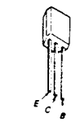
SECTION 4
DIAGRAMS

4-1. CIRCUIT BOARDS LOCATION

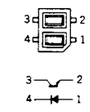


● SEMICONDUCTOR LEAD LAYOUT

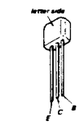
DTA114ES
DTA144ES
DTC124XS
DTC144ES



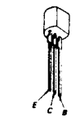
GP2S09-B



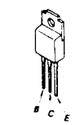
BA1L4M
2SC2785



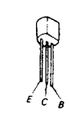
2SB1014



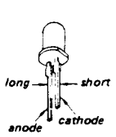
2SB1187
2SD1761-E



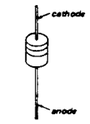
2SA733
2SC2001
2SD1387



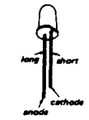
GL-5HY41



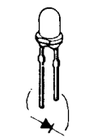
HZS6A1L
HZS7A1L



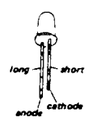
SEL1210S
SEL1410E



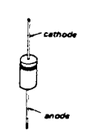
SEL4214S
SEL4414ED



SLP3070
SLP4070
SLP9070



US1060M
1SS132
10E2N



4-2. PRINTED WIRING BOARDS

● See pages 8 and 9 for Circuit Boards Location and Semiconductor Lead Layouts.

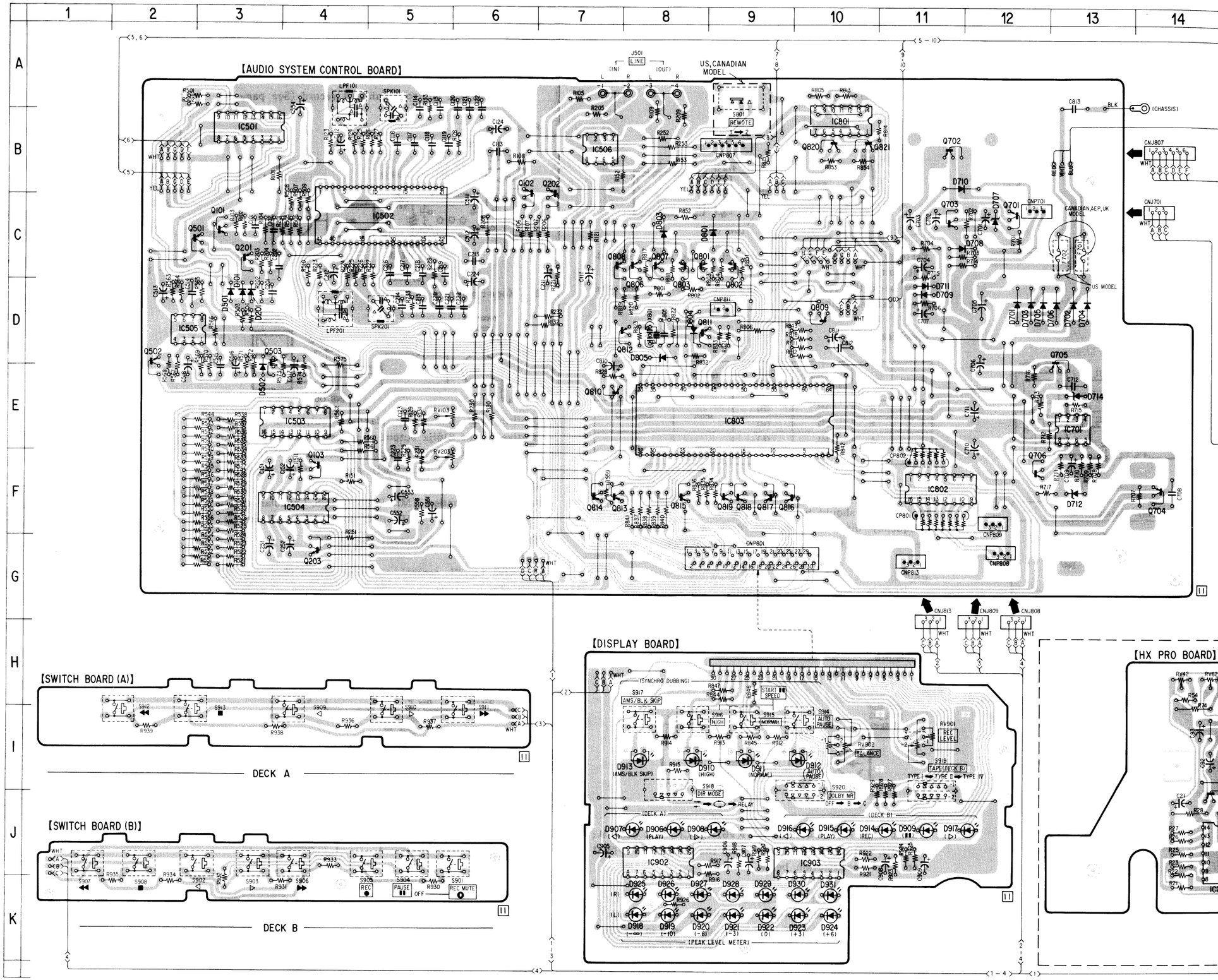
● Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D11A	D-27	Q11A	B-21
D11B	I-31	Q11B	●H-20
D81B	●J-21	Q11B	▲H-25
D81B	▲J-26	Q12A	C-25
D101	D-3	Q12B	I-29
D201	D-3	Q21	●J-14
D501	D-3	Q81B	●I-21
D502	E-3	Q81B	▲H-26
D701	D-12	Q82B	●I-21
D702	D-13	Q82B	▲I-26
D703	D-12	Q83B	●I-21
D704	D-13	Q83B	▲I-26
D705	D-12	Q101	C-3
D706	D-13	Q102	C-6
D707	C-12	Q103	F-4
D708	C-12	Q201	C-3
D709	D-11	Q202	C-7
D710	B-11	Q203	G-4
D711	D-11	Q501	C-3
D712	F-13	Q502	E-2
D714	E-13	Q503	E-3
D801	C-9	Q701	C-12
D803	C-8	Q702	B-11
D804	D-8	Q703	C-11
D805	D-8	Q704	F-14
D906	J-8	Q705	E-13
D907	J-8	Q706	F-12
D908	J-9	Q801	C-8
D909	J-11	Q802	C-9
D910	I-8	Q803	C-8
D911	I-9	Q806	C-8
D912	I-10	Q807	C-8
D913	I-8	Q808	C-8
D914	J-11	Q809	D-10
D915	J-10	Q810	E-7
D916	J-10	Q811	D-8
D917	J-12	Q812	D-8
D918	K-8	Q813	F-7
D919	K-8	Q814	F-7
D920	K-8	Q815	F-8
D921	K-9	Q816	F-9
D922	K-9	Q817	F-9
D923	K-10	Q818	F-9
D924	K-10	Q819	F-9
D925	K-8	Q820	B-10
D926	K-8	Q821	B-10
D927	K-8		
D928	K-9		
D929	K-9		
D930	K-10		
D931	K-10		
IC21	●J-14		
IC81A	D-21		
IC81B	●I-20		
IC81B	▲I-25		
IC91	●I-15		
IC501	B-3		
IC502	C-5		
IC503	E-4		
IC504	F-4		
IC505	D-2		
IC506	B-7		
IC701	E-13		
IC801	B-10		
IC802	F-11		
IC803	E-9		
IC804	C-16		
IC902	J-8		
IC903	J-10		

Note: ●; AEP, UK model
▲; US, Canadian model

Note:

- ○——: parts extracted from the component side.
- ●——: parts extracted from the conductor side.
- ■ : parts mounted on the conductor side.
- ⊡ : indicates side identified with part number.



T701 POWER
AC IN

【RAY CATCHER BOARD】
IC804 (REMOTE CONTROL RECEIVER) 11

【POWER SW BOARD】
S701 POWER ON OFF
J502 HEADPHONES
AEP, UK MODEL
(CHASSIS)
11

M1 REEL/CAPSTAN MOTOR
CNJ13-A
(CHASSIS) (CHASSIS)
CNJ12-A
CNJ82-A

【MD (A) BOARD】
Q11-A
R17-A
R18-A
CNP12-A
CNP13-A
CNP82-A
IC8I-A
CNP8I-A
14

HP101 PLAYBACK HEAD
CNJ8I-A
YEL WHT RED BLK

【LEAF SW (A) BOARD】
PM1
Q12-A
R14-A
SI4-A (CROSS)
SI1-A (HALF DET)
Q11-A
CNP11-A
CNJ11-A
14

DECK A

M2 REEL/CAPSTAN MOTOR
CNJ13-B
CNJ12-B
CNJ82-B
HRP101/HE101 RECORD/PLAYBACK/ERASE HEAD
CNJ8I-B
BLK ORG BRN BLU YEL WHT RED

【MD (B) BOARD】
Q11-B
Q81-B
Q82-B
Q83-B
IC8I-B
TP83-B
CNP82-B
CNP8I-B
CNP21-B
13

【CONNECTOR BOARD】
CNP22
11

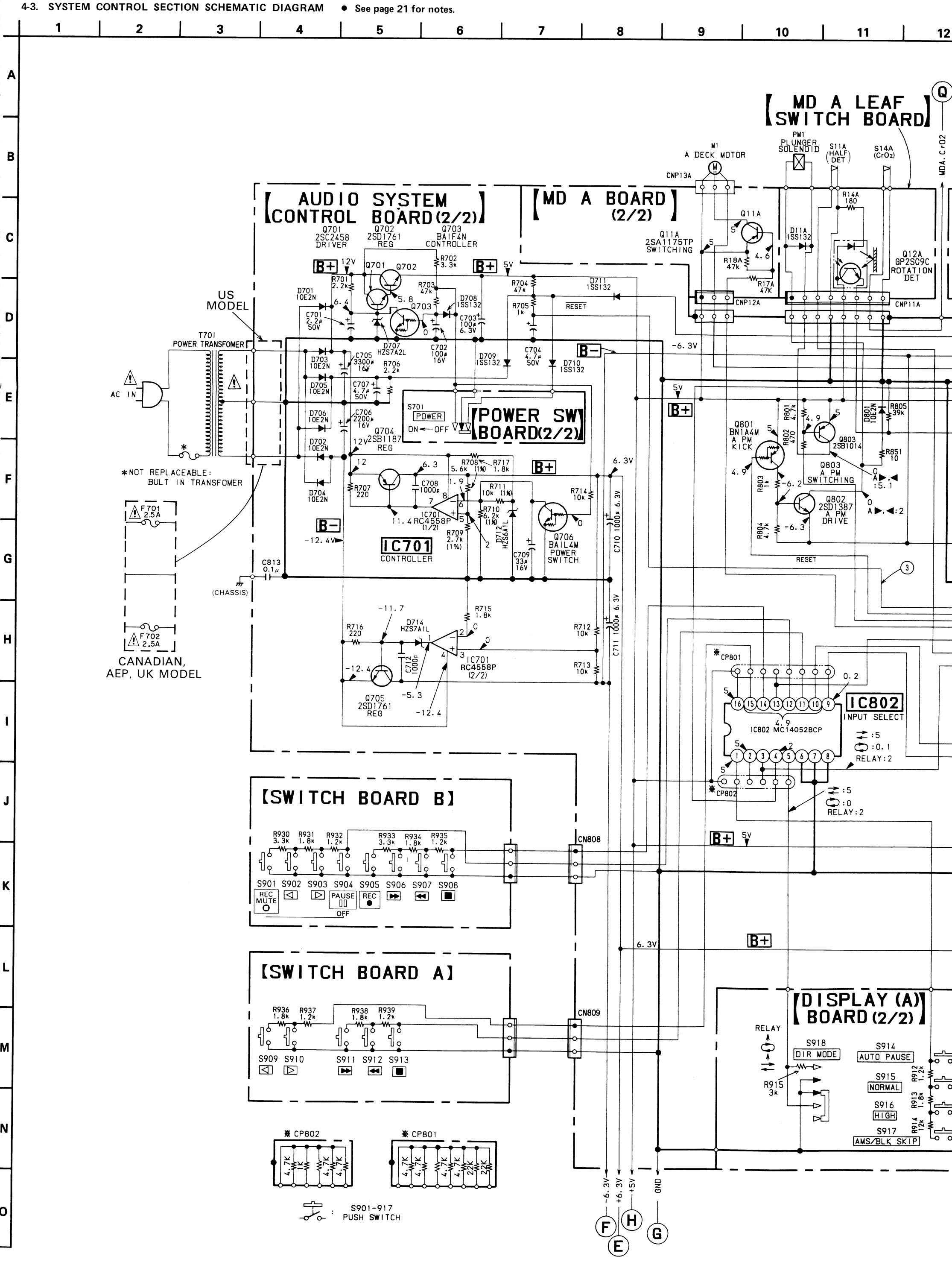
AEP, UK MODEL

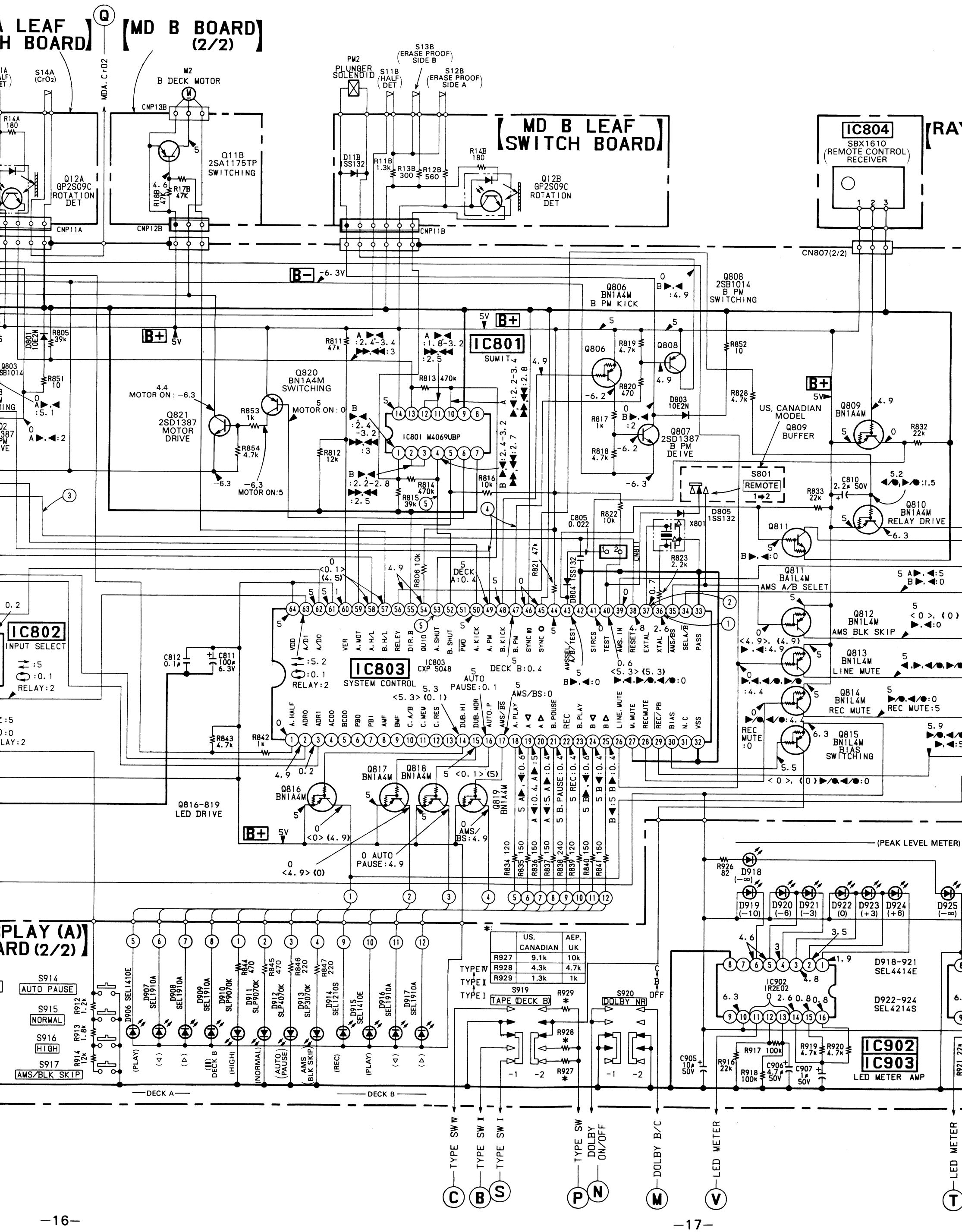
【MD (B) BOARD】
CNJ83-B
15

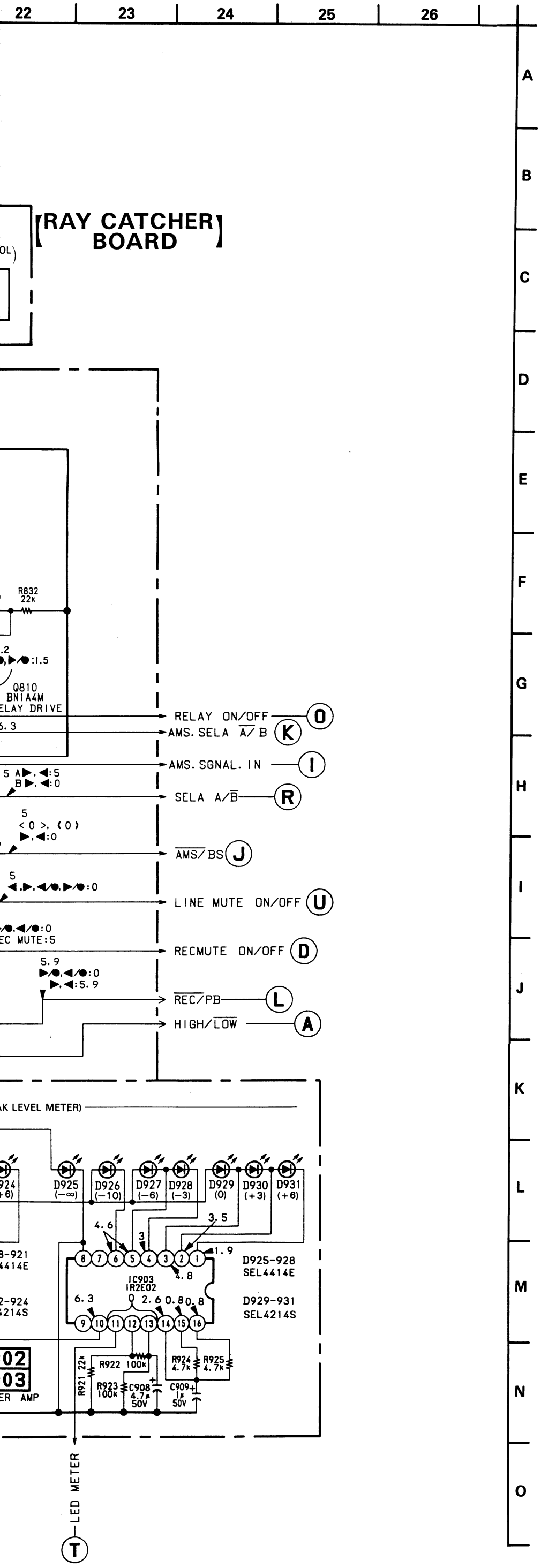
US, CANADIAN MODEL

【LEAF SW (B) BOARD】
PM2
CNJ11-B
SI2-B (ERASE PROOF) SIDE A
SI3-B (ERASE PROOF) SIDE B
Q11-B
14

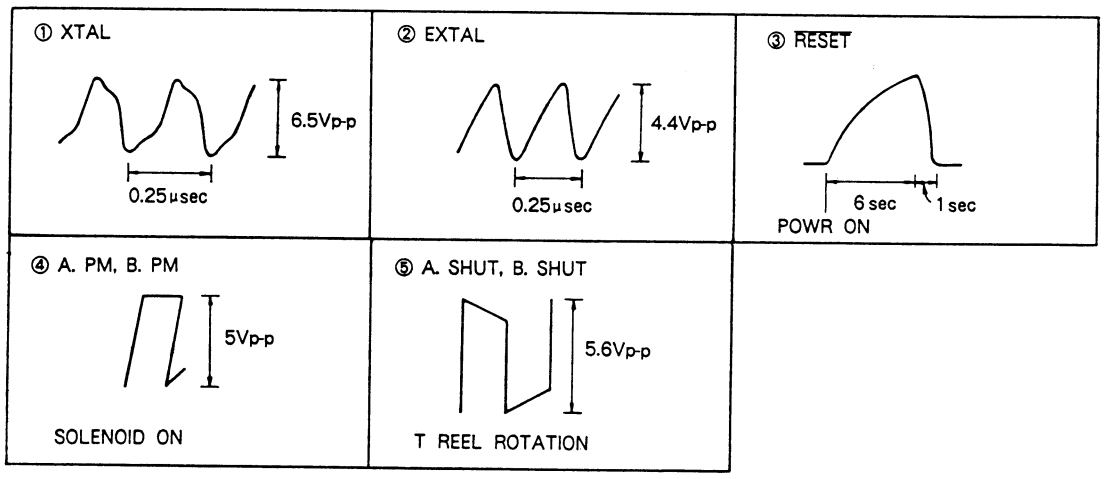
DECK B


【AUDIO SYSTEM CONTROL BOARD(2/2)】
【MD A BOARD (2/2)】
【MD A LEAF SWITCH BOARD】
【POWER SW BOARD(2/2)】
【SWITCH BOARD B】
【SWITCH BOARD A】
【DISPLAY (A) BOARD (2/2)】
IC701 CONTROLLER
IC802 INPUT SELECT
US MODEL
CANADIAN, AEP, UK MODEL
*NOT REPLACEABLE: BULT IN TRANSFOMER
AC IN
T701 POWER TRANSFOMER
M1 A DECK MOTOR
PM1 PLUNGER SOLENOID
S11A (HALF DET)
S14A (CrO2)
Q701 2SC2458 DRIVER
Q702 2SD1761 REG
Q703 BA1F4N CONTROLLER
Q704 2SB1187 REG
Q705 2SD1761 REG
Q706 BA1L4M POWER SWITCH
Q11A 2SA1175TP SWITCHING
Q801 BN1A4M A PM KICK
Q802 2SD1387 A PM DRIVE
Q803 2SB1014 A PM SWITCHING
Q12A GP2SC9C ROTATION DET
IC701 11.4 RC4558P (1/2)
IC701 RC4558P (2/2)
IC802 MC14052BCP
B+ 12V
B+ 5V
B+ 6.3V
B- -12.4V
-6.3V
RESET
CNP13A
CNP12A
CNP11A
CP801
CP802
CN808
CN809
S701 POWER ON←OFF
S901 REC MUTE
S902
S903
S904 PAUSE
S905 REC
S906
S907
S908
S909
S910
S911
S912
S913
S914 AUTO PAUSE
S915 NORMAL
S916 HIGH
S917 AMS/BLK SKIP
S918 DIR MODE
S901-917 PUSH SWITCH
RELAY
F701 2.5A
F702 2.5A
(CHASSIS)
MDA. CrO2
-6.3V
+6.3V
+5V
GND


[MD B BOARD (2/2)]
[MD B LEAF SWITCH BOARD]
[A LEAF H BOARD]
[RA
Q
MDA. CrO2
S14A (CrO2)
M2
B DECK MOTOR
CNP13B
CNP12B
CNP11A
CNP11B
R14A 180
Q12A GP2S09C ROTATION DET
Q11B 2SA1175TP SWITCHING
4.6
R18B 47K
R17B 47K
PM2
PLUNGER SOLENOID
S11B (HALF DET)
S13B (ERASE PROOF SIDE B)
S12B (ERASE PROOF SIDE A)
D11B 1SS132
R11B 1.3k
R13B 300
R12B 560
R14B 180
Q12B GP2S09C ROTATION DET
IC804
SBX1610 (REMOTE CONTROL) RECEIVER
1 2 3
CN807(2/2)
B− -6.3V
B+ 5V
Q806 BN1A4M B PM KICK
Q808 2SB1014 B PM SWITCHING
D801 10E2N
R805 39k
R851 10
Q803 SB1014
R811 47k
IC801
SUMIT
R813 470k
R812 12k
R814 470k
R815 39k
R816 10k
Q820 BN1A4M SWITCHING
Q821 2SD1387 MOTOR DRIVE
4.4
MOTOR ON: −6.3
MOTOR ON: 0
MOTOR ON:5
R853 1k
R854 4.7k
−6.3
IC801 M4069UBP
Q806
R819 4.7k
R820 470
−6.2
Q808
4.9
R817 1k
R818 4.7k
D803 10E2N
Q807 2SD1387 B PM DRIVE
−6.3
R852 10
R828 4.7k
US, CANADIAN MODEL
Q809 BUFFER
Q809 BN1A4M
R832 22k
S801 REMOTE 1→2
C810 2.2μ 50V
R833 22k
Q810 BN1A4M RELAY DRIVE
6.3
D805 1SS132
X801
C805 0.022
R822 10k
R821 47k
R806 10k
D804 1SS132
CN811
R823 2.2k
Q811 BA1L4M AMS A/B SELET
Q812 BN1L4M AMS BLK SKIP
Q813 BN1L4M LINE MUTE
Q814 BN1L4M REC MUTE
Q815 BN1L4M BIAS SWITCHING
REC MUTE :0
IC802
INPUT SELECT
RELAY:2
C812 0.1μ
C811 100μ 6.3V
R843 4.7k
R842 1k
IC803
CXP 5048
SYSTEM CONTROL
DECK A:0.4
DECK B:0.4
AUTO PAUSE:0.1
AMS/BS:0
VDD A/D1 A/D0 VER A.MOT A.H/L B.H/L RELEY DIR.B QUIO A.SHUT B.SHUT PWO A.KICK A.PM B.KICK B.PM SYNC IN SYNC O AMSSEL A/B TEST SIRCS TEST AMS.IN RESET EXTAL XTAL AMS/BS SELA/B PASS
A.HALF ADRO ADR1 ACOO BCOO PBO PB1 AWF BWF C.A/B C.WEM C.RES DUB.HI DUB.NOR AUTO.P AMS/BS A.PLAY B.POUSE REC B.PLAY LINE.MUTE M.MUTE RECMUTE REC/PB BIAS N.C VSS
Q816 BN1A4M
Q817 BN1A4M
Q818 BN1A4M
Q819 BN1A4M
Q816-819 LED DRIVE
R834 120
R835 150
R836 150
R837 150
R838 240
R839 120
R840 150
R841 150
(PEAK LEVEL METER)
D918 (−∞)
D919 (−10)
D920 (−6)
D921 (−3)
D922 (0)
D923 (+3)
D924 (+6)
D925 (−∞)
D918-921 SEL4414E
D922-924 SEL4214S
IC902
IR2E02
IC902
IC903
LED METER AMP
R926 82
R917 100k
R918 100k
R916 22k
R919 4.7k
R920 4.7k
C905 10μ 50V
C906 4.7μ 50V
C907 1μ 50V
S914 AUTO PAUSE
S915 NORMAL
S916 HIGH
S917 AMS/BLK SKIP
R912 1.2k
R913 1.8k
R914 12k
D906 SEL1410E
D907 SEL1910A
D908 SEL1910A
D909 SEL1910A
D910 SLP9070K
D911 SLP9070K
D912 SLP4070K
D913 SLP3070K
D914 SEL1210S
D915 SEL1410E
D916 SEL1910A
D917 SEL1910A
R844 470
R845 470
R846 220
R847 220
(PLAY) (◁) (▷) (II DECK B) (HIGH) (NORMAL) (AUTO PAUSE) AMS (BLK SKIP) (REC) (PLAY) (◁) (▷)
DECK A
DECK B
S919 TAPE (DECK B)
S920 DOLBY NR
OFF
R927 9.1k 10k
R928 4.3k 4.7k
R929 1.3k 1k
US, CANADIAN
AEP, UK
TYPE IV
TYPE II
TYPE I
R929 *
R928 *
R927 *
-1 -2
TYPE SW IV
TYPE SW II
TYPE SW I
TYPE SW
DOLBY ON/OFF
DOLBY B/C
LED METER
C B S P N M V T

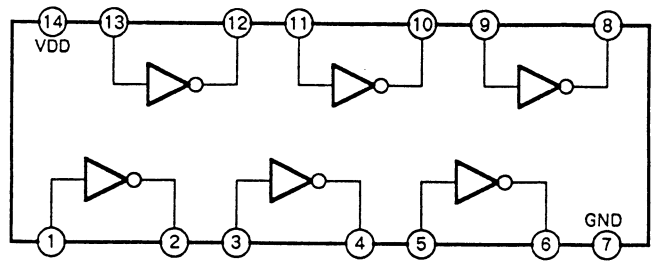


● WAVEFORMS

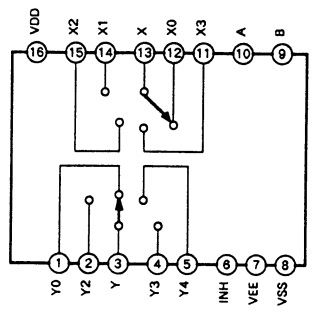


● IC BLOCK DIAGRAM

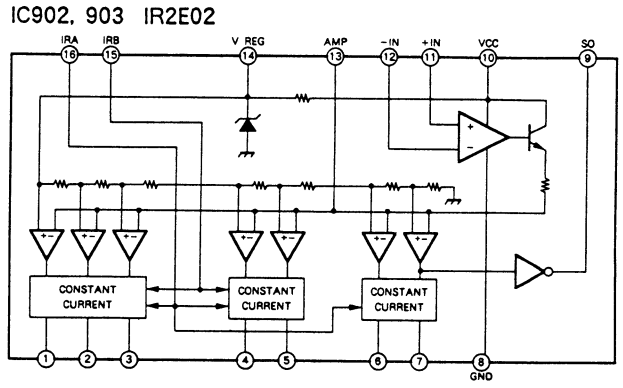
IC801 M4069UBP



IC802 M4052BP

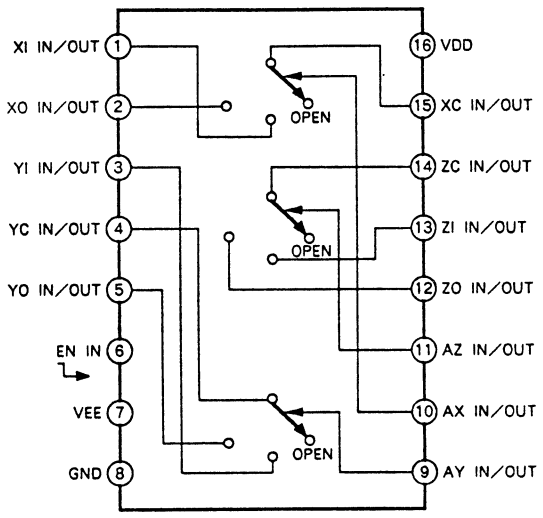


IC902, 903 IR2E02



● IC BLOCK DIAGRAM

IC501 M4053BP

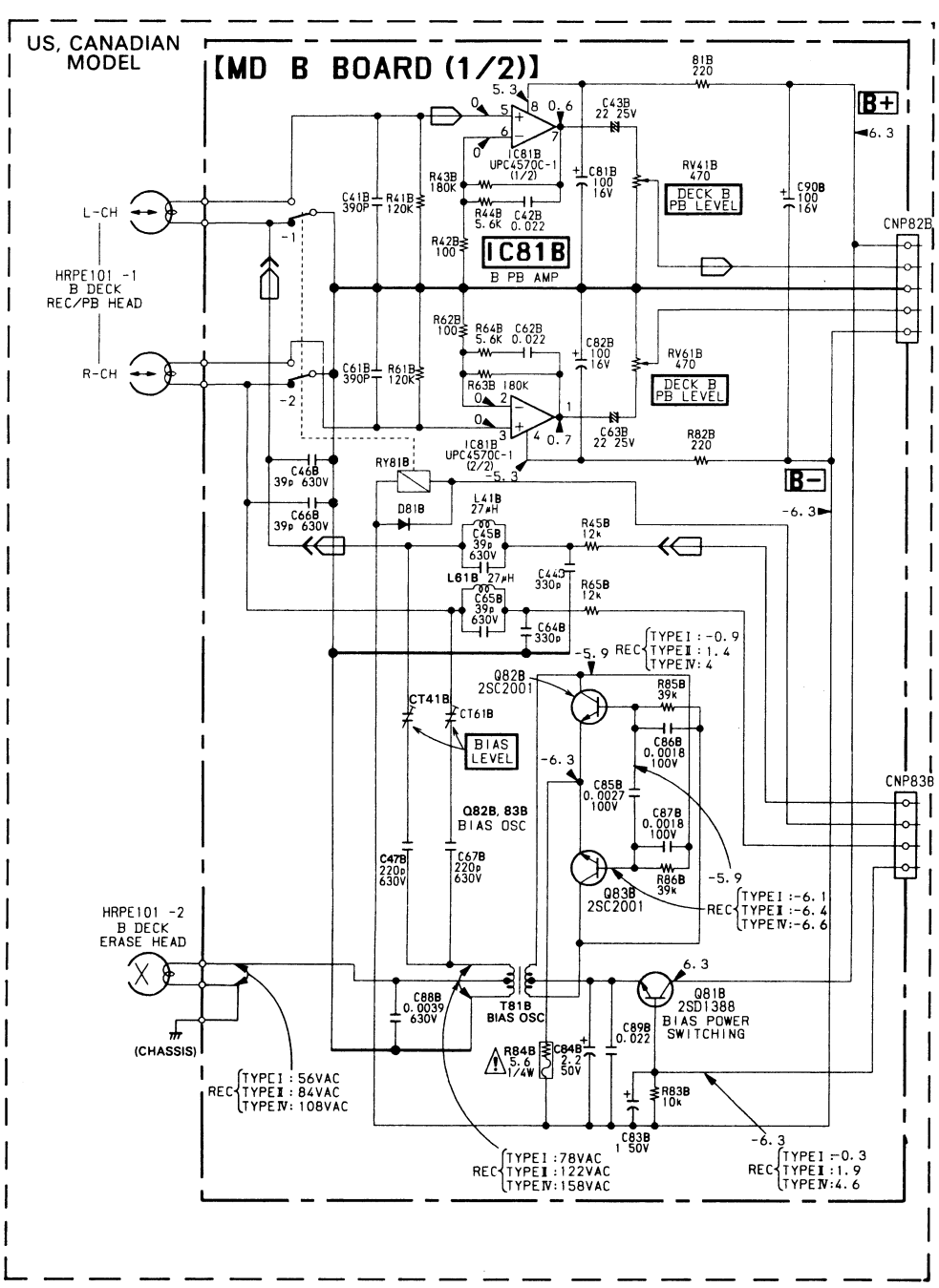


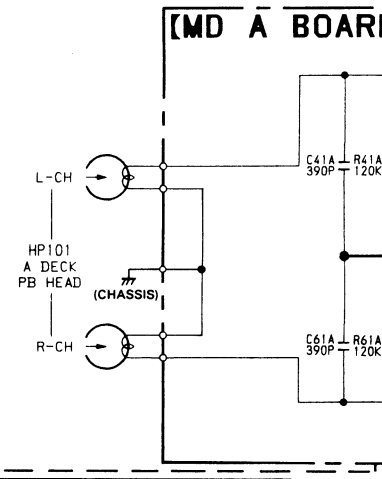
Note:

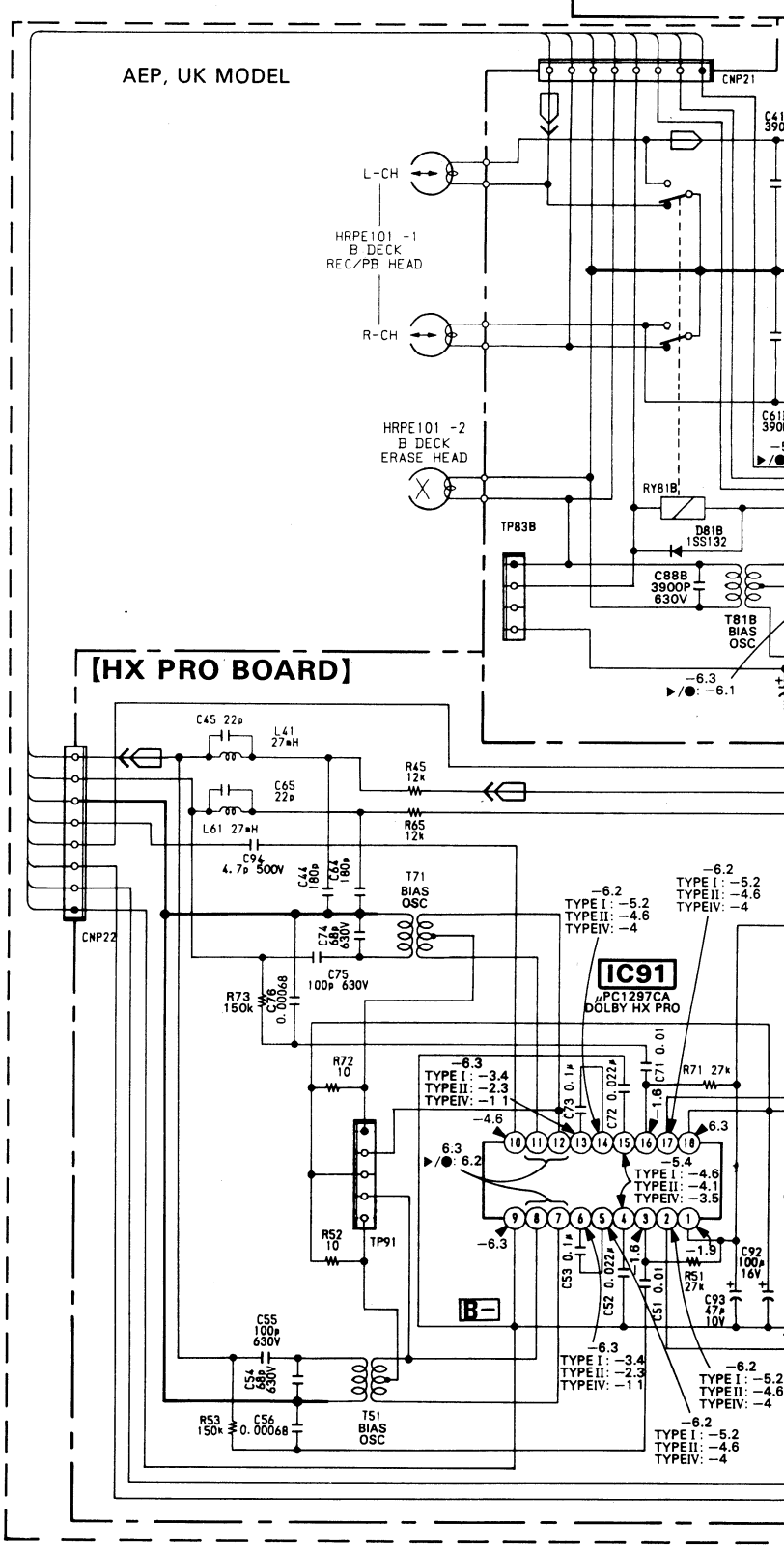
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- % : indicates tolerance.
- △ : internal component.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- B+ : B+ Line
- B− : B− Line
- ▭ : adjustment for repair.
- Voltage and waveforms are dc with respect to g under no-signal conditions.
  no mark: STOP
  < >: NORMAL SPEED DUBBING
  ≪ ≫: HIGH SPEED DUBBING
  ▶ : FWD ◀ : REV ■ : STOP
  ▶▶ : FF ◀◀ : REW ● : REC
- Voltages are taken with a VOM (50 kΩ/V). Voltage variations may be noted due to normal p tion tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal p tion tolerances.
- Signal path.
  : PB (DECK A)
  : PB (DECK B)
  : REC (DECK B)







th respect to ground

NG

■ : STOP
● : REC
kΩ/V).
ue to normal produc-

ope.
ue to normal produc-

A BOARD (1/2)

IC81A
A PB AMP
UPC4570C-1 (1/2)
UPC4570C-1 (2/2)
DECK A PB LEVEL
B+ 6.3
B− −6.3
−5.3

MD B BOARD (1/2)

IC81B
B PB AMP
UPC4570C-1 (1/2)
UPC4570C-1 (2/2)
DECK B PB LEVEL
B+
B−
Q82B 2SC945
Q83B 2SC945
Q81B 2SB1013
BIAS OSC
BIAS POWER SWITCHING
T81B BIAS OSC
D81B 1SS132

AUDIO SYSTEM CONTROL BOARD (2/2)

IC501
A/B DECK SWITCH
MC14053BCP
Q501 PB EQ SWITCH
Q101 BA1L4M MUTING
Q201 BA1L4M MUTING
Q501 BA1L4M
D501 1SS132
D101 1SS132
D201 1SS132
B+ 6.3V
B− −6.3V
0 B DECK ▶,◀: 6.2
B DECK ▶,◀: 5
B DECK ▶,◀: 4.5

DISPLAY (A) BOARD (1/2)

RV901 20K/20K REC LEVEL
RV902 50K/50K BALANCE
L-CH
R-CH

IC502 DOLBY NR AMP

LINE IN
LINE OUT
PB IN
REC/PB
DOLBY NR ON/OFF
DOLBY B/C
VDD
VEE

IC505 AMS AMP

IC505 RC4558P (1/2)
IC505 (2/2)
Q502 2SC2458 AMS SWITCH

IC21 LM339N REC EQ SWITCH

Q21 BN1L4W SWITCHING
BIAS LEVEL
RV42 22k (L-CH)
RV62 22k (R-CH)

CNP82A
CNP82B
CNP83
CNP21

TYPE SW — P
RELAY — O
AMS A/B — K
DOLBY ON/OFF — N
DLBY. B/C — M
REC/PB — L
AMS/BS — J

22 23 24 25 26 27 28 29 30 31 32 33

J501 LINE (IN) -1 -2 (OUT) -3 -4 L R

RV902 50K/50K BALANCE R105 22k -1 L-CH -2 R-CH R205 22k

R209 1k R207 15k R208 2.2k R232 8.2k R206 2.2k Q202 2SC2458 0.7 Q102, 202 LINE OUT MUTING R106 2.2k Q102 2SC2458 0.7 R109 1k R108 2.2k R107 15k R132 8.2k

B+ 6.3V R252 10k IC506 M5218P (1/2) IC506 M5218P (2/2) 6.3 R152 10k R153 100 R253 100 -6.3

IC506 HEADPHONES AMP

[POWER SW] BOARD(1/2) CN807(1/2) J502 HEADPHONES C253 0.0022μ C153 0.0022μ AEP, UK MODEL (CHASSIS)

LED METER T

LINE. MUTE. ON/OFF U

LED METER V

B- -6.3V

L R

R124 8.2k R125 2.4k (1%) R126 4.3k SPK101 LPF101 R123 3.3k C112 10μ 50V C113 3.3μ 50V C114 0.0047μ -4.3 DOLBY C:-5.1 R127 430 C115 0.015μ C116 0.47μ C117 0.15μ C118 0.22μ C119 0.068μ C120 0.047μ C121 0.0068μ C122 0.01μ C123 0.22μ R128 680 R129 8.2k R130 4.7k R131 2.2k RV103 10k C124 4.7μ 50V -5.1

IC502 DOLBY NR AMP

LINE OUT H LS -5.2 H DET -4.1 L DET L LS REC OUT REC GAIN

LPF201 R223 3.3k C212 10μ 50V C213 3.3μ 50V C214 0.0047μ R224 8.2k R225 2.4k (1%) R226 4.3k SPK201 R227 430 C216 0.47μ C217 0.15μ C218 0.22μ C219 0.068μ C220 0.047μ C221 0.0068μ C222 0.01μ C223 0.22μ R228 680 R229 8.2k R230 4.7k R231 2.2k RV203 10k R233 6.8k C215 0.015μ -4.3 DOLBY C:-5.1

R558 10k C551 1μ 50V R559 1k

IC504 REC EQ C252 3.3μ 50V C552 220μ 6.3V -6.3 C251 10μ 50V C151 10μ 50V C152 3.3μ 50V C553 220μ 6.3V R251 1k Q203 2SC2458 REC MUTING R151 1k Q103 2SC2458 REC MUTING 0.7 0.3

IC504 CXA1198AP

R511 24k

fM fQ f/Q GP GL GH

R526 56k R532 220k R538 150k R544 120k R550 100k R556 110k
R525 82k R531 120k R537 91k R543 47k R549 43k R555 75k
R524 130k R530 82k R536 120k R542 56k R548 62k R554 39k
R523 56k R529 * R535 * R541 * R547 30k R553 *
R522 33k R528 * R534 47k R540 56k R546 36k R552 68k
R521 43k R527 * R533 * R539 39k R545 16k R551 43k

*	US, CANADIAN	AEP, UK		US, CANADIAN	AEP, UK		US, CANADIAN	AEP, UK
R529	33k	24k	R535	51k	62k	R553	15k	12k
R528	51k	56k	R533	62k	82k			
R527	68k	75k						

TYPE I/IV:1.2 TYPE I:0 TYPE I/II:1.2 TYPE IV:0 TYPE I:0 TYPE I/IV:1.2 TYPE I:5.4 TYPE II:0 TYPE IV:5.4 TYPE I/II:5.4 TYPE IV:0 NOMAL:0 HIGH:5.2

R560 47k R561 47k R562 47k

IC503 MC14051BCP VDD VEE VSS X0 X1 X2 X3 X4 X5 X6 X7 INH A B C

IC503 REC EQ SWITCH

Q503 2SA1175 AMS RECT R572 100k D502 1SS132 R571 10k R573 1k R569 1k R570 100k C516 2.2μ 50V C517 2.2μ 50V C518 4.7μ 50V R574 68k IC505 (2/2) 6.3 -6.3 4.7 5.1

B+ 6.3V B+ 5V B- -6.3V B- -6.3V B- -6.3V

AMS SGNAL I +5V H GND G -6.3V F +6.3V E REC MUTE. ON/OFF D

TYPE SW IV C TYPE SW II B HIGH/LOW A

SECTION 5
EXPLODED VIEWS

NOTE:

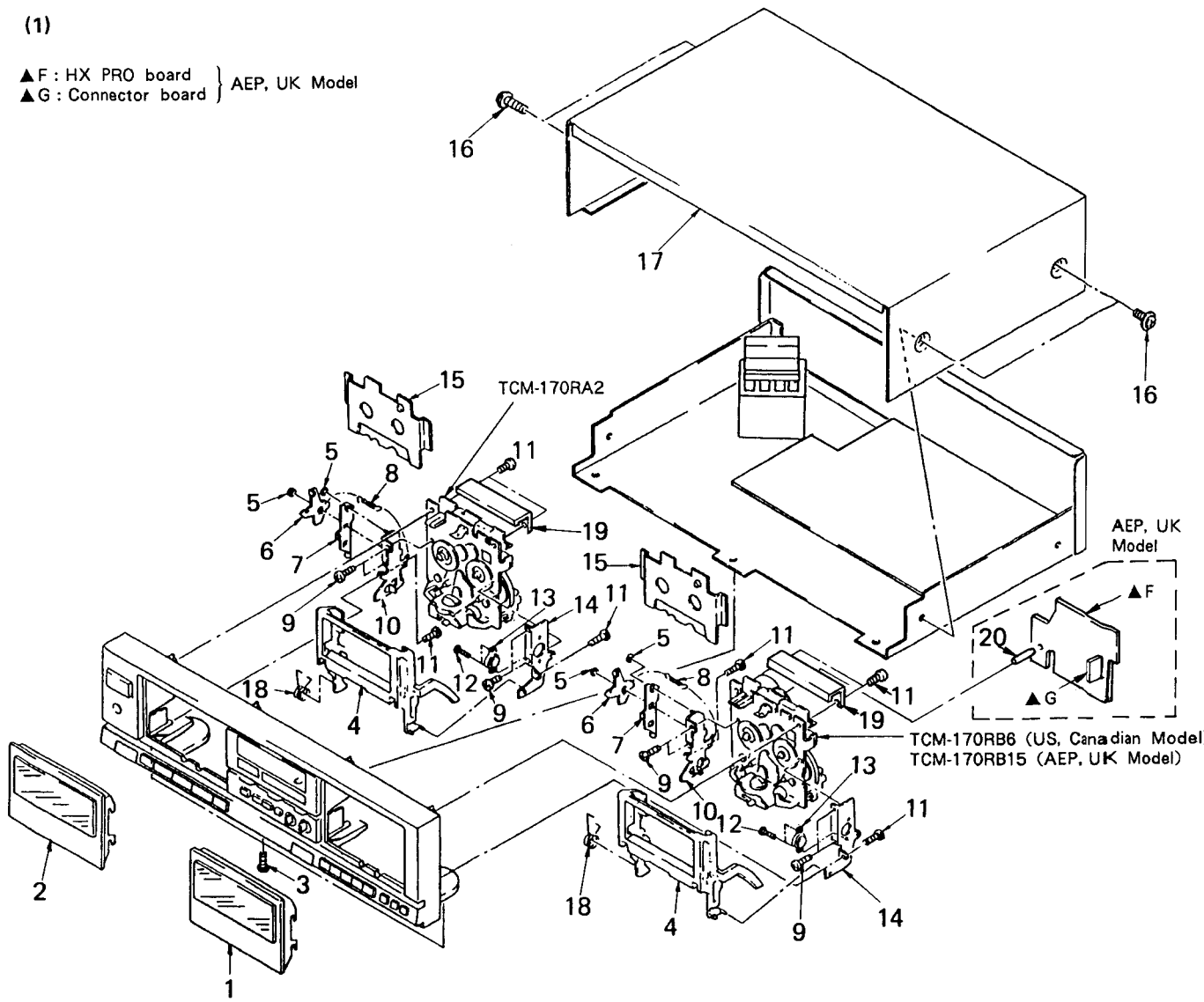
- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ ↑
  Cabinet's Color Parts' Color

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifé.

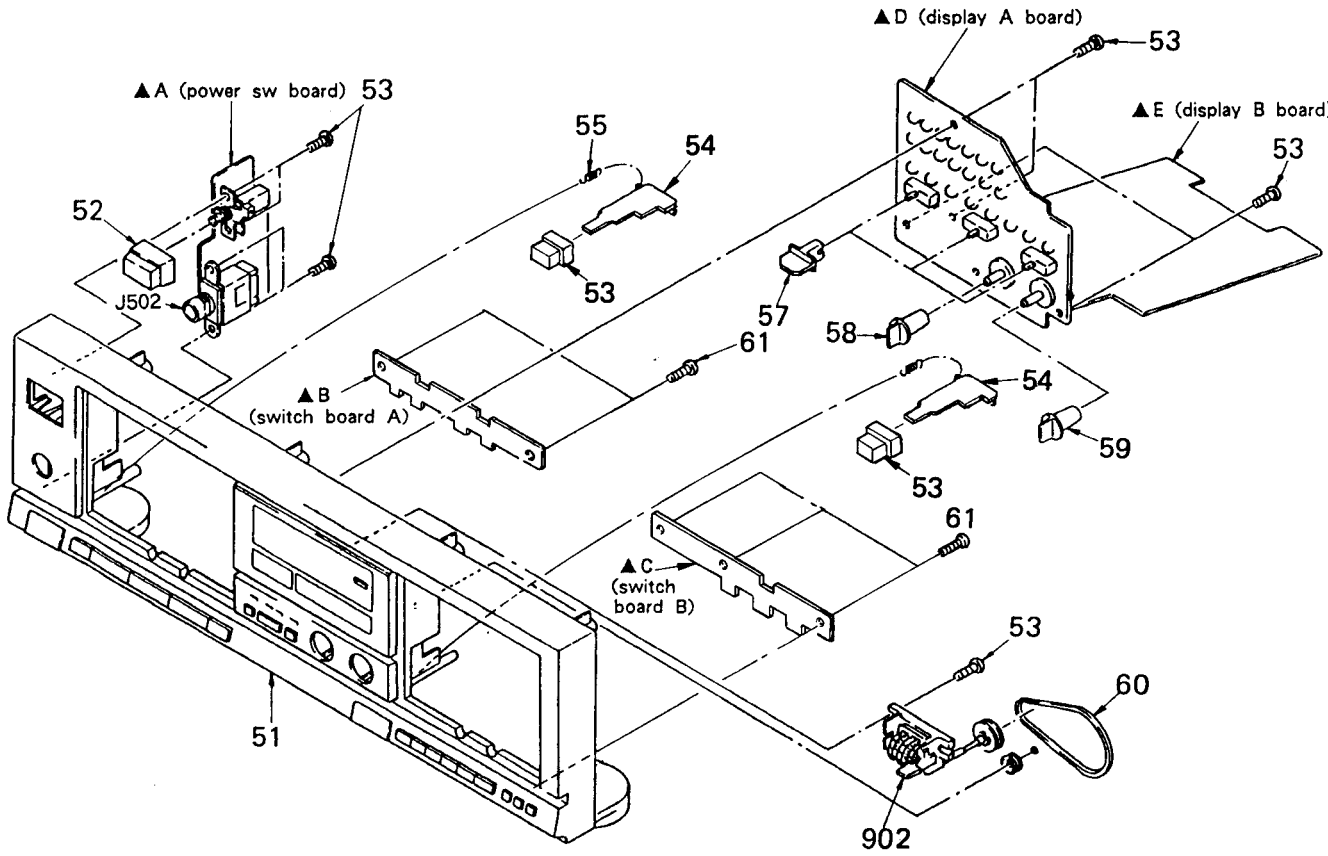
(1)

▲F : HX PRO board
▲G : Connector board
} AEP, UK Model



No.	Part No.	Description	Remarks
1	X-3340-156-1	(US,Canadian)...LID (B) ASSY, CASSETTE	
	X-3340-164-1	(AEP,UK).....LID (B) ASSY, CASSETTE	
2	X-3340-155-1	LID (A) ASSY, CASSETTE	
3	7-682-548-04	SCREW +BVTT 3X8 (S)	
4	X-3332-482-1	HOLDER ASSY, CASSETTE	
5	3-558-708-21	WASHER, STOPPER	
6	*3-343-449-01	LEVER (LOCK LEVER)	
7	*3-346-306-01	LEVER (EJECT)	
8	3-312-432-00	SPRING, TENSION	
9	7-621-770-87	SCREW +BVTT 2.6X5 (S)	
10	*X-3332-487-1	BRACKET ASSY (B)	
11	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S	
12	7-621-255-15	SCREW +PTT 2X3 (S)	
13	3-319-224-31	DAMPER, SMALL	
14	*3-346-305-01	BRACKET (DAMPER)	
15	*3-340-123-01	RETAINER, CASSETTE	
16	3-704-366-01	SCREW (CASE) (M3X8)	
17	3-332-578-71	CASE	
18	3-346-336-01	SPRING, TORSION	
19	*3-349-049-01	BRACKET (M)	
20	*3-682-419-21	(AEP,UK)...PCB HOLDER	

(2)

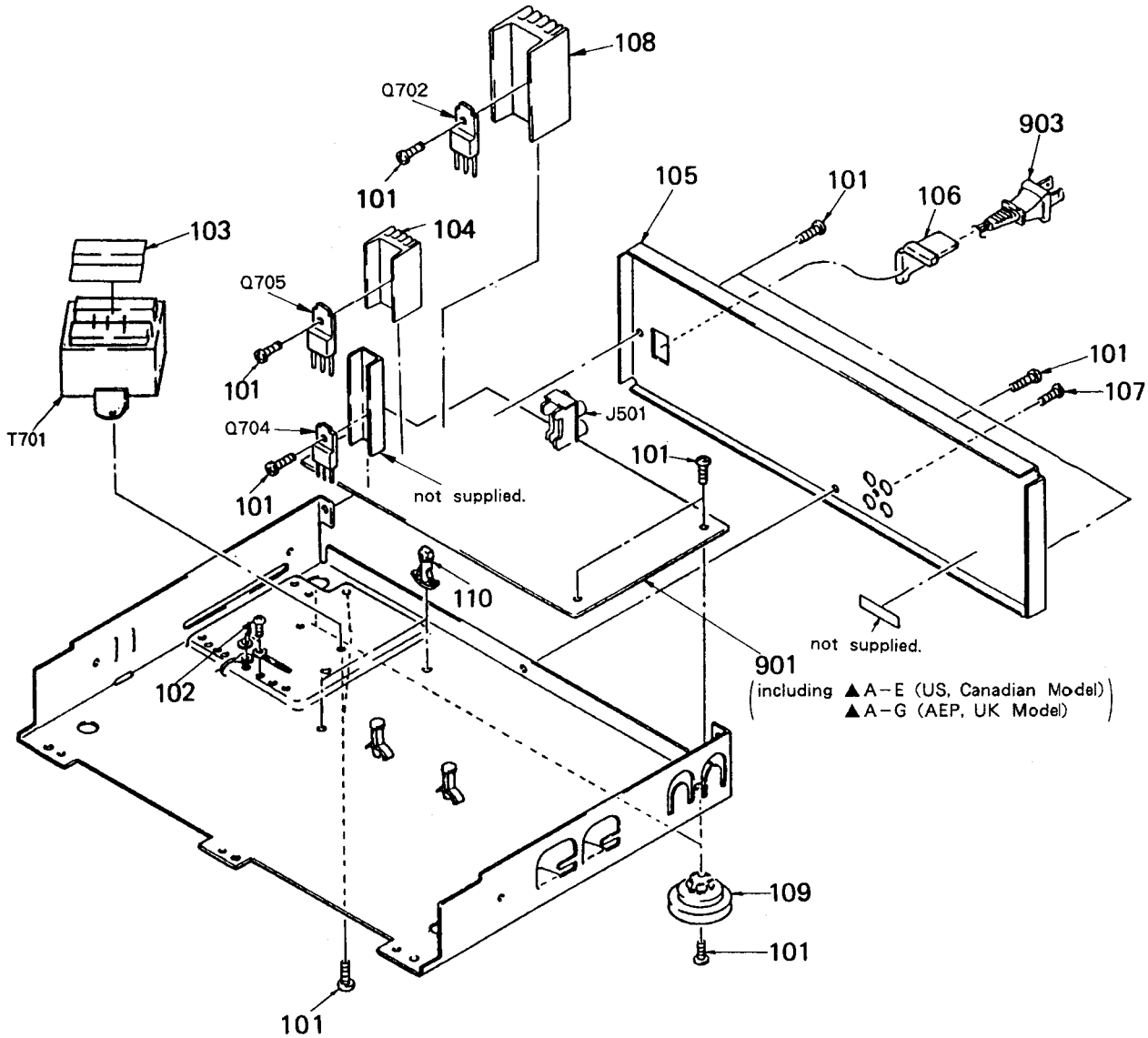


No.	Part No.	Description	Remarks
51	X-3340-157-1	(US,Canadian)...PANEL ASSY, FRONT	
	X-3340-166-1	(AEP,UK).....PANEL ASSY, FRONT	
52	4-917-460-01	KNOB, POWER	
53	3-343-698-21	BUTTON (EJECT)	
54	*3-349-070-01	SLIDER (EJECT)	
55	3-662-752-21	SPRING, TENSION	
56	7-682-548-04	SCREW +BVTT 3X8 (S)	
57	3-346-379-21	KNOB (SLIDE)	
58	3-346-380-11	KNOB (VOL)	
59	3-346-380-21	KNOB (VOL)	
60	3-333-457-01	BELT (DIA.47.4)	
61	7-685-533-19	SCREW +BTP 2.6X6	
902	1-548-596-11	COUNTER, TAPE (MIDDLE TYPE)	
J502	1-507-796-71	JACK (HEADPHONES)	

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

5-3.



No.	Part No.	Description	Remarks
101	7-682-548-04	SCREW +BVTT 3X8 (S)	
102	7-682-547-04	SCREW +BVTT 3X6 (S)	
103	*3-337-136-01	COVER, TRANSFORMER SAFETY	
104	*4-363-146-21	HEAT SINK, V.OUT	
105	*3-349-050-21	(AEP).....PANEL, BACK	
	*3-349-050-31	(UK).....PANEL, BACK	
	*3-349-050-41	(US,Canadian)...PANEL, BACK	
106	*3-703-244-00	(AEP,UK).....BUSHING (2104), CORD	
	3-703-571-00	(US,Canadian)...BUSHING (S)(4516), CORD	
107	7-621-849-00	SCREW, TAPPING	
108	*4-363-147-00	HEAT SINK, H.PIN	

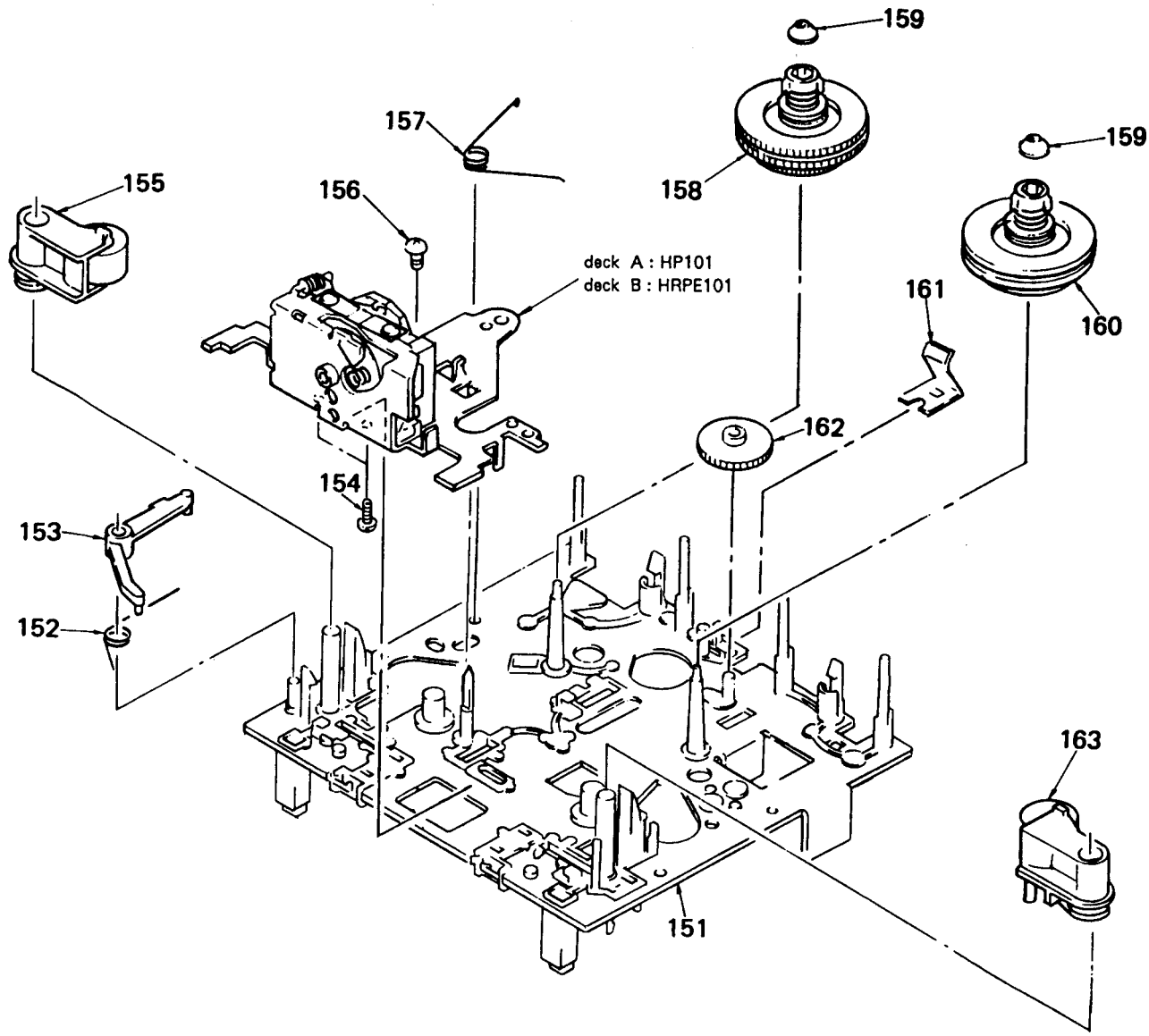
No.	Part No.	Description	Remarks
109	X-4885-935-1	(AEP,UK).....FOOT ASSY	
	X-4911-201-1	(US,Canadian)...FOOT ASSY	
110	*3-346-265-11	HOLDER, PC BOARD	
111	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
901	*A-2006-091-A	(US).....MOUNTED PCB, SYSTEM CONTROL	
	*A-2006-092-A	(Canadian)...MOUNTED PCB, SYSTEM CONTROL	
	*A-2056-446-A	(AEP,UK).....MOUNTED PCB, SYSTEM CONTROL	
903 ⚠	.1-551-506-XX	(US,Canadian)...CORD, POWER	
⚠	.1-551-884-21	(UK).....CORD, POWER	
⚠	.1-555-795-00	(AEP).....CORD, POWER, EURO PLUG	
J501	1-565-258-11	JACK, PIN 4P (LINE IN/OUT)	
T701 ⚠	.1-449-420-11	(US,Canadian)...TRANSFORMER, POWER	
T701 ⚠	.1-449-661-11	(AEP,UK).....TRANSFORMER, POWER	

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

(4)

DECK A : TCM-170RA2
DECK B : TCM-170RB6 (US, Canadian Model)
TCM-170RB15 (AEP, UK Model)

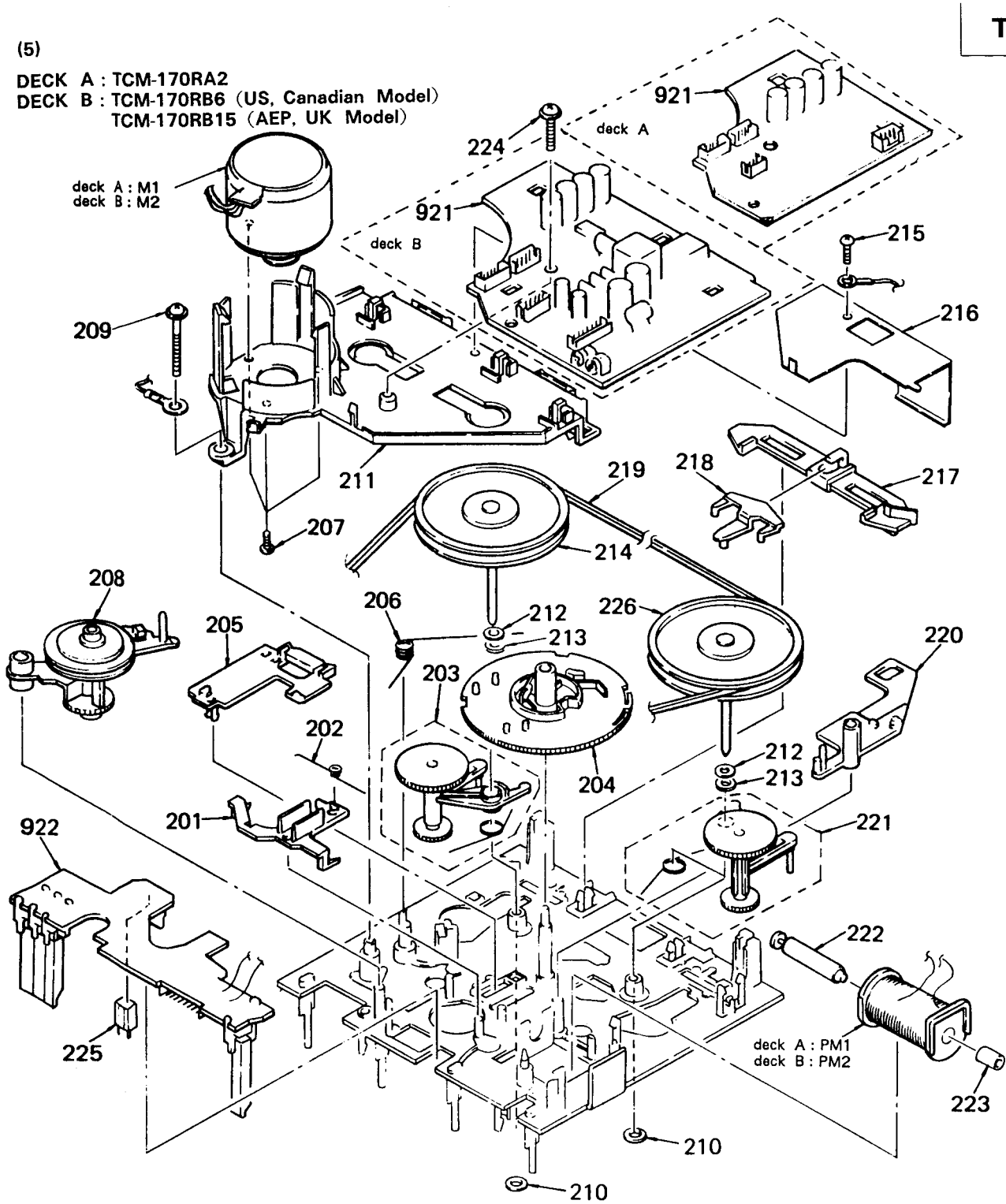


No.	Part No.	Description	Remarks
151	*X-3343-418-1	CHASSIS ASSY, MECHANICAL	
152	3-343-477-01	SPRING, TORSION (EJECT SAFTY)	
153	*3-343-476-01	LEVER (EJECT SAFETY LEVER)	
154	7-685-102-19	SCREW +P 2X4 NON-SLIT TYPE 2	
155	X-3343-403-1	LEVER (PINCH LEVER REV) ASSY	
157	3-343-401-01	SPRING, TORSION	
158	X-3343-415-1	TABEL (REV) ASSY, REEL	

No.	Part No.	Description	Remarks
159	3-343-439-01	CAP (REEL TABLE)	
160	X-3343-401-1	TABEL ASSY, REEL	
161	3-343-420-01	SPRING, LEAF	
162	3-343-411-01	GEAR (FF GEAR)	
163	X-3343-402-1	LEVER (PINCH LEVER FWD) ASSY	
HP101	A-2108-129-A	(DECK A)...CHASSIS ASSY, HEAD	
HRPE101	A-2108-130-A	(DECK B)...CHASSIS ASSY, HEAD	

(5)

DECK A : TCM-170RA2
DECK B : TCM-170RB6 (US, Canadian Model)
TCM-170RB15 (AEP, UK Model)



No.	Part No.	Description	Remarks
201	3-343-453-01	SLIDER (BRAKE PLATE)	
202	3-343-429-01	SPRING, TORSION	
203	X-3343-406-1	LEVER (TU ARM REV) ASSY	
204	3-343-470-01	GEAR (CAM GEAR)	
205	*3-343-461-01	SLIDER	
206	3-343-430-01	SPRING, TORSION	
207	7-627-556-28	SCREW +P 2.6X3.5	
208	X-3343-414-1	LAVER (FR ARM) ASSY	
209	3-343-403-01	SCREW (PTTWH 2X18)	
210	3-343-473-01	WASHER, NYLON	
211	*X-3343-407-1	BASE (THRUST RETAINER) ASSY	
212	4-605-835-11	WASHER (2.6), POLYSLIDER	
213	3-307-482-00	WASHER, LUMILER	
214	X-3343-429-1	FLYWHEEL COMPLETE ASSY	
215	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT	
216	3-343-480-01	PLATE, SHIELD	
217	*3-343-457-01	SLIDER (REVERSE SLIDER)	

No.	Part No.	Description	Remarks
218	3-343-462-01	LEVER	
219	3-343-426-02	BELT (CAPSTAN BELT SQUARE)	
220	3-343-493-01	LEVER (PM LEVER)	
221	X-3343-405-1	LEVER (TU ARM FWD) ASSY	
222	*3-343-425-01	ARBOR(MOVABLE IRON ARBOR),IRON	
223	*3-343-424-01	ARBOR (FIXED IRON ARBOR), IRON	
224	3-343-404-01	SCREW (PTPWH 2X10)	
225	*3-343-419-01	HOLDER (S SENSER A)	
226	X-3343-431-1	FLYWHEEL (REV) COMPLETE ASSY	
921	*1-624-147-11	(DECK A).....PC BOARD,	MD-A
	*1-625-912-14	(US,Canadian:DECK B)...PC BOARD,	MD (B)
	*1-629-211-11	(AEP,UK:DECK B).....PC BOARD,	MD (B)
922	*1-624-148-11	PC BOARD, LEAF SW	
M1	X-3343-408-1	(DECK A)...MOTOR ASSY	
M2	X-3343-408-1	(DECK B)...MOTOR ASSY	
PM1	1-454-456-11	(DECK A)...SOLENOID, PLUNGER	
PM2	1-454-456-11	(DECK B)...SOLENOID, PLUNGER	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description
901	*A-2006-091-A	(US).....MOUNTED PCB, SYSTEM CONTROL
	*A-2006-092-A	(Canadian)..MOUNTED PCB, SYSTEM CONTROL
	*A-2056-446-A	(AEP,UK)....MOUNTED PCB, SYSTEM CONTROL
902	1-548-596-11	COUNTER, TAPE (MIDDLE TYPE)
903	⚠ 1-551-506-XX	(US,Canadian)...CORD, POWER
	⚠ 1-551-884-21	(UK).....CORD, POWER
	⚠ 1-555-795-00	(AEP).....CORD, POWER, EURO PLUG
921	*1-624-147-11	(DECK A).....PC BOARD, MD-A
	*1-625-912-14	(US,Canadian:DECK B)...PC BOARD, MD (B)
	*1-629-211-11	(AEP,UK:DECK B).....PC BOARD, MD (B)
922	*1-624-148-11	PC BOARD, LEAF SW
C21	1-124-902-00	(AEP,UK)...ELECT 0.47MF 20% 50V
C41A	1-162-289-31	CERAMIC 390PF 10% 50V
C41B	1-110-342-11	MYLAR 390PF 5% 50V
C42A	1-136-157-00	FILM 0.022MF 5% 50V
C42B	1-136-157-00	FILM 0.022MF 5% 50V
C43A	1-124-282-00	ELECT 22MF 20% 25V
C43B	1-124-282-00	ELECT 22MF 20% 25V
C44	1-162-285-31	(AEP,UK).....CERAMIC 180PF 10% 50V
C44B	1-162-288-31	(US,Canadian)..CERAMIC 330PF 10% 50V
C45	1-107-210-00	(AEP,UK).....MICA 22PF 5% 500V
C45B	1-136-440-11	(US,Canadian)...FILM 39PF 5% 630V
C46B	1-136-440-11	(US,Canadian)...FILM 39PF 5% 630V
C47B	1-136-437-11	(US,Canadian)...FILM 220PF 5% 630V
C51	1-136-153-00	(AEP,UK)...FILM 0.01MF 5% 50V
C52	1-136-157-00	(AEP,UK)...FILM 0.022MF 5% 50V
C53	1-136-165-00	(AEP,UK)...FILM 0.1MF 5% 50V
C54	1-136-272-00	(AEP,UK)...FILM 68PF 5% 630V
C55	1-136-433-11	(AEP,UK)...FILM 100PF 5% 630V
C56	1-130-469-00	(AEP,UK)...FILM 0.00068MF 5% 50V
C61A	1-162-289-31	CERAMIC 390PF 10% 50V
C61B	1-110-342-11	MYLAR 390PF 5% 50V
C62A	1-136-157-00	FILM 0.022MF 5% 50V
C62B	1-136-157-00	FILM 0.022MF 5% 50V
C63A	1-124-282-00	ELECT 22MF 20% 25V
C63B	1-124-282-00	ELECT 22MF 20% 25V
C64	1-162-285-31	(AEP,UK).....CERAMIC 180PF 10% 50V
C64B	1-162-288-31	(US,Canadian)..CERAMIC 330PF 10% 50V
C65	1-107-210-00	(AEP,UK).....MICA 22PF 5% 500V
C65B	1-136-440-11	(US,Canadian)...FILM 39PF 5% 630V
C66B	1-136-440-11	(US,Canadian)...FILM 39PF 5% 630V
C67B	1-136-437-11	(US,Canadian)...FILM 220PF 5% 630V
C71	1-136-153-00	(AEP,UK).....FILM 0.01MF 5% 50V
C72	1-136-157-00	(AEP,UK).....FILM 0.022MF 5% 50V
C73	1-136-165-00	(AEP,UK).....FILM 0.1MF 5% 50V
C74	1-136-272-00	(AEP,UK).....FILM 68PF 5% 630V
C75	1-136-433-11	(AEP,UK).....FILM 100PF 5% 630V
C76	1-130-469-00	(AEP,UK).....FILM 0.00068MF 5% 50V
C81A	1-126-101-11	ELECT 100MF 20% 16V
C81B	1-124-443-00	(AEP,UK).....ELECT 100MF 20% 10V
C81B	1-126-101-11	(US,Canadian)...ELECT 100MF 20% 16V
C82A	1-126-101-11	ELECT 100MF 20% 16V
C82B	1-124-443-00	(AEP,UK).....ELECT 100MF 20% 10V
C82B	1-126-101-11	(US,Canadian)...ELECT 100MF 20% 16V
C83B	1-124-499-11	(US,Canadian)...ELECT 1MF 20% 50V
C84B	1-123-875-11	(AEP,UK).....ELECT 10MF 20% 50V
C84B	1-124-925-11	(US,Canadian)...ELECT 2.2MF 20% 50V
C85B	1-130-848-00	(AEP,UK).....FILM 0.0082MF 5% 100V
C85B	1-130-729-00	(US,Canadian)...FILM 0.0027MF 5% 100V
C86B	1-136-593-11	(AEP,UK).....FILM 0.0033MF 5% 100V
C86B	1-136-253-11	(US,Canadian)...FILM 0.0018MF 5% 100V
C87B	1-136-593-11	(AEP,UK).....FILM 0.0033MF 5% 100V
C87B	1-136-253-11	(US,Canadian)...FILM 0.0018MF 5% 100V
C88B	1-136-558-11	(US,Canadian)...FILM 0.0039MF 5% 630V
C89B	1-161-494-00	(US,Canadian)...CERAMIC 0.022MF 25V
C90B	1-126-101-11	ELECT 100MF 20% 16V
C92	1-136-153-00	(AEP,UK).....FILM 0.01MF 5% 50V
C93	1-136-153-00	(AEP,UK).....FILM 0.01MF 5% 50V
C94	1-136-153-00	(AEP,UK).....FILM 0.01MF 5% 50V
C101	1-136-157-00	FILM 0.022MF 5% 50V
C102	1-162-290-31	CERAMIC 470PF 10% 50V
C111	1-123-875-11	ELECT 10MF 20% 50V
C112	1-123-875-11	ELECT 10MF 20% 50V
C113	1-124-273-00	ELECT 3.3MF 20% 50V
C114	1-130-479-00	MYLAR 0.0047MF 5% 50V
C115	1-136-155-00	FILM 0.015MF 5% 50V
C116	1-136-173-00	FILM 0.47MF 5% 50V
C117	1-136-167-00	FILM 0.15MF 5% 50V
C118	1-136-169-00	FILM 0.22MF 5% 50V
C119	1-136-163-00	FILM 0.068MF 5% 50V
C120	1-136-161-00	FILM 0.047MF 5% 50V
C121	1-130-481-00	MYLAR 0.0068MF 5% 50V
C122	1-136-153-00	FILM 0.01MF 5% 50V
C123	1-136-169-00	FILM 0.22MF 5% 50V

Ref.No.	Part No.	Description			
C124	1-124-927-11	ELECT	4.7MF	20%	50V
C151	1-123-875-11	ELECT	10MF	20%	50V
C152	1-123-382-00	ELECT	3.3MF	20%	50V
C153	1-162-296-11	(AEP,UK)...CERAMIC	0.0022MF	30%	16V
C201	1-136-157-00	FILM	0.022MF	5%	50V
C202	1-162-290-31	CERAMIC	470PF	10%	50V
C211	1-123-875-11	ELECT	10MF	20%	50V
C212	1-123-875-11	ELECT	10MF	20%	50V
C213	1-124-273-00	ELECT	3.3MF	20%	50V
C214	1-130-479-00	MYLAR	0.0047MF	5%	50V
C215	1-136-155-00	FILM	0.015MF	5%	50V
C216	1-136-173-00	FILM	0.47MF	5%	50V
C217	1-136-167-00	FILM	0.15MF	5%	50V
C218	1-136-169-00	FILM	0.22MF	5%	50V
C219	1-136-163-00	FILM	0.068MF	5%	50V
C220	1-136-161-00	FILM	0.047MF	5%	50V
C221	1-130-481-00	MYLAR	0.0068MF	5%	50V
C222	1-136-153-00	FILM	0.01MF	5%	50V
C223	1-136-169-00	FILM	0.22MF	5%	50V
C224	1-124-927-11	ELECT	4.7MF	20%	50V
C251	1-123-875-11	ELECT	10MF	20%	50V
C252	1-123-382-00	ELECT	3.3MF	20%	50V
C253	1-162-296-11	(AEP,UK)...CERAMIC	0.0022MF	30%	16V
C511	1-123-875-11	ELECT	10MF	20%	50V
C512	1-123-875-11	ELECT	10MF	20%	50V
C513	1-124-902-00	ELECT	0.47MF	20%	50V
C514	1-162-215-31	CERAMIC	47PF	5%	50V
C515	1-136-157-00	FILM	0.022MF	5%	50V
C516	1-124-925-11	ELECT	2.2MF	20%	50V
C517	1-124-925-11	ELECT	2.2MF	20%	50V
C518	1-124-927-11	ELECT	4.7MF	20%	50V
C551	1-124-499-11	ELECT	1MF	20%	50V
C552	1-126-176-11	ELECT	220MF	20%	6.3V
C553	1-126-176-11	ELECT	220MF	20%	6.3V
C554	1-124-120-11	ELECT	220MF	20%	16V
C701	1-124-925-11	ELECT	2.2MF	20%	50V
C702	1-126-101-11	ELECT	100MF	20%	16V
C703	1-124-443-00	ELECT	100MF	20%	6.3V
C704	1-124-927-11	ELECT	4.7MF	20%	50V
C705	1-124-887-00	ELECT	3300MF	20%	16V
C706	1-124-556-11	ELECT	2200MF	20%	16V
C707	1-124-927-11	ELECT	4.7MF	20%	50V
C708	1-162-294-31	CERAMIC	0.001MF	10%	50V
C709	1-124-963-11	ELECT	33MF	20%	16V
C710	1-124-471-00	ELECT	1000MF	20%	6.3V
C711	1-124-471-00	ELECT	1000MF	20%	6.3V
C712	1-162-294-31	CERAMIC	0.001MF	10%	50V
C805	1-161-494-00	CERAMIC	0.022MF		25V
C810	1-124-925-11	ELECT	2.2MF	20%	50V
C811	1-124-443-00	ELECT	100MF	20%	6.3V
C812	1-164-159-11	CERAMIC	0.1MF		50V
C813	1-164-159-11	CERAMIC	0.1MF		50V
C905	1-123-875-11	ELECT	10MF	20%	50V
C906	1-126-163-11	ELECT	4.7MF	20%	50V
C907	1-124-438-00	ELECT	1MF	20%	50V
C908	1-124-927-11	ELECT	4.7MF	20%	50V
C909	1-124-499-11	ELECT	1MF	20%	50V

Ref.No.	Part No.	Description
CN701	*1-564-337-00	PIN, CONNECTOR 3P
CN801	1-566-908-11	SOCKET, CONNECTOR 32P
CN807	*1-564-340-00	PIN, CONNECTOR 6P
CN808	*1-564-337-61	PIN, CONNECTOR 3P
CN809	*1-564-337-00	PIN, CONNECTOR 3P
CN811	*1-564-505-11	PLUG, CONNECTOR 2P
CN813	*1-564-338-00	PIN, CONNECTOR 4P
CN901	1-535-773-11	JUMPER, FILM (WITH TERMINAL)
CNP11A	*1-564-501-11	PIN, CONNECTOR 8P
CNP11B	*1-564-499-11	PIN, CONNECTOR 6P
CNP12A	*1-564-337-00	PIN, CONNECTOR 3P
CNP12B	*1-564-337-61	PIN, CONNECTOR 3P
CNP13A	*1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P
CNP13B	*1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P
CNP21B	*1-565-344-11	(AEP,UK)...PIN, CONNECTOR (PC BOARD) 8P
CNP22	*1-565-347-11	(AEP,UK)...SOCKET, CONNECTOR (PC BOARD) 8P
CNP81A	*1-564-706-11	PIN, CONNECTOR (SMALL TYPE) 4P
CNP81B	*1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P
CNP82A	*1-564-339-00	PIN, CONNECTOR 5P
CNP82B	*1-564-339-00	PIN, CONNECTOR 5P
CNP83	*1-564-338-00	(AEP,UK).....PIN, CONNECTOR 4P
CNP83B	*1-564-338-00	(US,Canadian)...PIN, CONNECTOR 4P
CP801	1-233-120-11	COMPOSITION CIRCUIT BLOCK
CP802	1-233-119-11	COMPOSITION CIRCUIT BLOCK
CT41B	1-141-391-11	(US,Canadian)...CAP, TRIMMER
CT61B	1-141-391-11	(US,Canadian)...CAP, TRIMMER
D11A	8-719-107-94	DIODE 1SS132
D11B	8-719-107-94	DIODE 1SS132
D81B	8-719-107-94	DIODE 1SS132
D101	8-719-107-94	DIODE 1SS1322
D201	8-719-107-94	DIODE 1SS132
D501	8-719-107-94	DIODE 1SS132
D502	8-719-107-94	DIODE 1SS132
D701	8-719-200-77	DIODE 10E2N
D702	8-719-200-77	DIODE 10E2N
D703	8-719-200-77	DIODE 10E2N
D704	8-719-200-77	DIODE 10E2N
D705	8-719-200-77	DIODE 10E2N
D706	8-719-200-77	DIODE 10E2N
D707	8-719-933-43	DIODE HZS7A1L
D708	8-719-107-94	DIODE 1SS132
D709	8-719-107-94	DIODE 1SS132
D710	8-719-107-94	DIODE 1SS132
D711	8-719-107-94	DIODE 1SS132
D712	8-719-933-33	DIODE HZS6A1L
D714	8-719-933-43	DIODE HZS7A1L
D801	8-719-200-77	DIODE 10E2N
D803	8-719-200-77	DIODE 10E2N
D804	8-719-107-94	DIODE 1SS132
D805	8-719-107-94	DIODE 1SS132
D906	8-719-302-52	DIODE SEL1410E
D907	8-719-941-46	DIODE GL-5HY41

Ref.No.	Part No.	Description
D908	8-719-941-46	DIODE GL-5HY41
D909	8-719-941-46	DIODE GL-5HY41
D910	1-807-689-11	DIODE SLP9070
D911	1-807-689-11	DIODE SLP9070
D912	1-807-689-11	DIODE SLP4070
D913	8-719-975-61	DIODE SLP3070
D914	8-719-302-45	DIODE SEL1210S
D915	8-719-302-52	DIODE SEL1410E
D916	8-719-941-46	DIODE GL-5HY41
D917	8-719-941-46	DIODE GL-5HY41
D918	8-719-304-38	DIODE SEL4414E-D
D919	8-719-304-38	DIODE SEL4414E-D
D920	8-719-304-38	DIODE SEL4414E-D
D921	8-719-304-38	DIODE SEL4414E-D
D922	8-719-304-32	DIODE SEL4214S
D923	8-719-304-32	DIODE SEL4214S
D924	8-719-304-32	DIODE SEL4214S
D925	8-719-304-38	DIODE SEL4414E-D
D926	8-719-304-38	DIODE SEL4414E-D
D927	8-719-304-38	DIODE SEL4414E-D
D928	8-719-304-38	DIODE SEL4414E-D
D929	8-719-304-32	DIODE SEL4214S
D930	8-719-304-32	DIODE SEL4214S
D931	8-719-304-32	DIODE SEL4214S
HP101	A-2108-129-A	(DECK A)...CHASSIS ASSY, HEAD
HRPE101	A-2108-130-A	(DECK B)...CHASSIS ASSY, HEAD
F701 ⚠	1-532-780-21	(Canadian,AEP,UK)...FUSE, MICRO 2.5A
F702 ⚠	1-532-780-21	(Canadian,AEP,UK)...FUSE, MICRO 2.5A
IC21	8-759-133-90	IC UPC339C
IC91	8-759-106-56	IC UPC1297CA
IC81A	8-759-111-44	IC UPC4570C-1
IC81B	8-759-111-44	IC UPC4570C-1
IC501	8-759-040-53	IC MC14053BCP
IC502	8-752-018-70	IC CX20187
IC503	8-759-208-06	IC TC4051BPHB
IC504	8-752-033-61	IC CXA1198AP
IC505	8-759-945-58	IC RC4558P
IC506	8-759-601-02	IC M5218P
IC701	8-759-945-58	IC RC4558P
IC801	8-759-240-69	IC TC4069UBP
IC802	8-759-240-52	IC TC4052BP
IC803	8-752-806-03	IC CXP5048H-159S
IC804	8-741-161-00	IC SBX1610-51
IC902	8-759-912-79	IC IR2E02
IC903	8-759-912-79	IC IR2E02
J501	1-565-258-11	JACK, PIN 4P (LINE IN/OUT)
J502	1-507-796-71	JACK (HEADPHONES)
L41	1-410-780-11	(AEP,UK).....INDUCTOR 27MMH
L41B	1-410-780-11	(US,Canadian)...INDUCTOR 27MMH
L61	1-410-780-11	(AEP,UK).....INDUCTOR 27MMH
L61B	1-410-780-11	(US,Canadian)...INDUCTOR 27MMH
LPF101	1-236-475-11	FILTER, LOW PASS
LPF201	1-236-475-11	FILTER, LOW PASS
M1	X-3343-408-1	(DECK A)...MOTOR ASSY
M2	X-3343-408-1	(DECK B)...MOTOR ASSY
PM1	1-454-456-11	(DECK A)...SOLENOID, PLUNGER
PM2	1-454-456-11	(DECK B)...SOLENOID, PLUNGER

Ref.No.	Part No.	Description
Q11A	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q11B	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q12A	8-719-939-23	TRANSISTOR GP2S09-C
Q12B	8-719-939-23	TRANSISTOR GP2S09-C
Q21	8-729-900-65	(AEP,UK)...TRANSISTOR DTA144ES
Q81B	8-729-111-29	(US,Canadian)...TRANSISTOR 2SD1388
Q81B	8-729-116-57	(AEP,UK).....TRANSISTOR 2SB1013
Q82B	8-729-100-12	(US,Canadian)...TRANSISTOR 2SC2001-L
Q82B	8-729-194-57	(AEP,UK).....TRANSISTOR 2SC945
Q83B	8-729-100-12	(US,Canadian)...TRANSISTOR 2SC2001-L
Q83B	8-729-194-57	(AEP,UK).....TRANSISTOR 2SC945
Q101	8-729-115-77	TRANSISTOR BA1L4M
Q102	8-729-119-78	TRANSISTOR 2SC2785
Q103	8-729-119-78	TRANSISTOR 2SC2785
Q201	8-729-115-77	TRANSISTOR BA1L4M
Q202	8-729-119-78	TRANSISTOR 2SC2785
Q203	8-729-119-78	TRANSISTOR 2SC2785
Q501	8-729-115-77	TRANSISTOR BA1L4M
Q502	8-729-119-78	TRANSISTOR 2SC2785
Q503	8-729-173-38	TRANSISTOR 2SA733
Q701	8-729-119-78	TRANSISTOR 2SC2785
Q702	8-729-904-27	TRANSISTOR 2SD1761-E
Q703	8-729-900-83	TRANSISTOR DTC124XS
Q704	8-729-920-91	TRANSISTOR 2SB1187-F
Q705	8-729-904-27	TRANSISTOR 2SD1761-E
Q706	8-729-115-77	TRANSISTOR BA1L4M
Q801	8-729-900-61	TRANSISTOR DTA114ES
Q802	8-729-801-93	TRANSISTOR 2SD1387
Q803	8-729-802-22	TRANSISTOR 2SB1014
Q806	8-729-900-61	TRANSISTOR DTA114ES
Q807	8-729-801-93	TRANSISTOR 2SD1387
Q808	8-729-802-22	TRANSISTOR 2SB1014
Q809	8-729-900-61	TRANSISTOR DTA114ES
Q810	8-729-900-61	TRANSISTOR DTA114ES
Q811	8-729-115-77	TRANSISTOR BA1L4M
Q812	8-729-900-65	TRANSISTOR DTA144ES
Q813	8-729-900-65	TRANSISTOR DTA144ES
Q814	8-729-900-65	TRANSISTOR DTA144ES
Q815	8-729-900-65	TRANSISTOR DTA144ES
Q816	8-729-900-61	TRANSISTOR DTA114ES
Q817	8-729-900-61	TRANSISTOR DTA114ES
Q818	8-729-900-61	TRANSISTOR DTA114ES
Q819	8-729-900-61	TRANSISTOR DTA114ES
Q820	8-729-900-61	TRANSISTOR DTA114ES
Q821	8-729-801-93	TRANSISTOR 2SD1387
R11B	1-247-834-11	CARBON 1.3K 5% 1/4W
R12B	1-249-414-11	CARBON 560 5% 1/4W
R13B	1-247-818-11	CARBON 300 5% 1/4W
R14A	1-249-408-11	CARBON 180 5% 1/4W
R14B	1-249-408-11	CARBON 180 5% 1/4W
R17A	1-249-437-11	CARBON 47K 5% 1/4W
R17B	1-249-437-11	CARBON 47K 5% 1/4W
R18A	1-249-437-11	CARBON 47K 5% 1/4W
R18B	1-249-437-11	CARBON 47K 5% 1/4W

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description				
R21	1-249-425-11	(AEP,UK)...CARBON	4.7K	5%	1/4W	
R22	1-249-421-11	(AEP,UK)...CARBON	2.2K	5%	1/4W	
R23	1-249-421-11	(AEP,UK)...CARBON	2.2K	5%	1/4W	
R24	1-249-423-11	(AEP,UK)...CARBON	3.3K	5%	1/4W	
R25	1-249-429-11	(AEP,UK)...CARBON	10K	5%	1/4W	
R26	1-249-430-11	(AEP,UK)...CARBON	12K	5%	1/4W	
R27	1-247-838-00	(AEP,UK)...CARBON	2.0K	5%	1/4W	
R28	1-249-419-11	(AEP,UK)...CARBON	1.5K	5%	1/4W	
R41A	1-247-881-00	CARBON	120K	5%	1/4W	
R41B	1-247-881-00	CARBON	120K	5%	1/4W	
R42A	1-249-405-11	CARBON	100	5%	1/4W	
R42B	1-249-405-11	CARBON	100	5%	1/4W	
R43A	1-247-882-11	CARBON	130K	5%	1/4W	
R43B	1-247-882-11	(AEP,UK).....CARBON	130K	5%	1/4W	
R43B	1-247-885-00	(US,Canadian)...CARBON	180K	5%	1/4W	
R44A	1-249-426-11	CARBON	5.6K	5%	1/4W	
R44B	1-249-426-11	CARBON	5.6K	5%	1/4W	
R45	1-249-430-11	(AEP,UK).....CARBON	12K	5%	1/4W	
R45B	1-249-430-11	(US,Canadian)...CARBON	12K	5%	1/4W	
R51	1-249-434-11	(AEP,UK).....CARBON	27K	5%	1/4W	
R52	1-249-393-11	(AEP,UK).....CARBON	150K	5%	1/4W	
R53	1-247-883-00	(AEP,UK).....CARBON	150K	5%	1/4W	
R54	1-249-433-11	(AEP,UK).....CARBON	22K	5%	1/4W	
R61A	1-247-881-00	CARBON	120K	5%	1/4W	
R61B	1-247-881-00	CARBON	120K	5%	1/4W	
R62A	1-249-405-11	CARBON	100	5%	1/4W	
R62B	1-249-405-11	CARBON	100	5%	1/4W	
R63A	1-247-882-11	CARBON	130K	5%	1/4W	
R63B	1-247-882-11	(AEP,UK).....CARBON	130K	5%	1/4W	
R63B	1-247-885-00	(US,Canadian)...CARBON	180K	5%	1/4W	
R64A	1-249-426-11	CARBON	5.6K	5%	1/4W	
R64B	1-249-426-11	CARBON	5.6K	5%	1/4W	
R65	1-249-430-11	(AEP,UK).....CARBON	12K	5%	1/4W	
R65B	1-249-430-11	(US,Canadian)...CARBON	12K	5%	1/4W	
R71	1-249-434-11	(AEP,UK).....CARBON	27K	5%	1/4W	
R72	1-249-393-11	(AEP,UK).....CARBON	10	5%	1/4W	
R73	1-247-883-00	(AEP,UK).....CARBON	150K	5%	1/4W	
R74	1-249-433-11	(AEP,UK).....CARBON	22K	5%	1/4W	
R81A	1-249-409-11	CARBON	220	5%	1/4W	
R81B	1-249-409-11	CARBON	220	5%	1/4W	
R82A	1-249-409-11	CARBON	220	5%	1/4W	
R82B	1-249-409-11	CARBON	220	5%	1/4W	
R83B	1-249-429-11	(US,Canadian)...CARBON	10K	5%	1/4W	
R84B ⚠	1-212-851-00	(US,Canadian)...FUSIBLE	5.6	5%	1/4W	F
R84B ⚠	1-212-849-00	(AEP,UK).....FUSIBLE	4.7	5%	1/4W	F
R85B	1-249-436-11	(US,Canadian)...CARBON	39K	5%	1/4W	
R85B	1-249-438-11	(AEP,UK).....CARBON	56K	5%	1/4W	
R86B	1-249-436-11	(US,Canadian)...CARBON	39K	5%	1/4W	
R86B	1-249-438-11	(AEP,UK).....CARBON	56K	5%	1/4W	
R87B	1-249-429-11	(AEP,UK)...CARBON	10K	5%	1/4W	
R88B	1-249-429-11	(AEP,UK)...CARBON	10K	5%	1/4W	
R101	1-249-423-11	CARBON	3.3K	5%	1/4W	
R102	1-249-423-11	CARBON	3.3K	5%	1/4W	
R103	1-247-887-00	CARBON	220K	5%	1/4W	

Ref.No.	Part No.	Description				
R104	1-249-430-11	CARBON	12K	5%	1/4W	
R105	1-249-433-11	CARBON	22K	5%	1/4W	
R106	1-249-421-11	CARBON	2.2K	5%	1/4W	
R107	1-249-431-11	CARBON	15K	5%	1/4W	
R108	1-249-421-11	CARBON	2.2K	5%	1/4W	
R109	1-249-417-11	CARBON	1K	5%	1/4W	
R121	1-249-417-11	CARBON	1K	5%	1/4W	
R123	1-249-423-11	CARBON	3.3K	5%	1/4W	
R124	1-249-428-11	CARBON	8.2K	5%	1/4W	
R125	1-215-430-00	METAL	2.4K	1%	1/6W	
R126	1-247-846-11	CARBON	4.3K	5%	1/4W	
R127	1-247-822-11	CARBON	430	5%	1/4W	
R128	1-249-415-11	CARBON	680	5%	1/4W	
R129	1-249-428-11	CARBON	8.2K	5%	1/4W	
R130	1-249-425-11	CARBON	4.7K	5%	1/4W	
R131	1-249-421-11	CARBON	2.2K	5%	1/4W	
R132	1-249-428-11	CARBON	8.2K	5%	1/4W	
R133	1-249-427-11	CARBON	6.8K	5%	1/4W	
R151	1-249-417-11	CARBON	1K	5%	1/4W	
R152	1-249-429-11	CARBON	10K	5%	1/4W	
R153	1-249-405-11	CARBON	100	5%	1/4W	
R201	1-249-423-11	CARBON	3.3K	5%	1/4W	
R202	1-249-423-11	CARBON	3.3K	5%	1/4W	
R203	1-247-887-00	CARBON	220K	5%	1/4W	
R204	1-249-430-11	CARBON	12K	5%	1/4W	
R205	1-249-433-11	CARBON	22K	5%	1/4W	
R206	1-249-421-11	CARBON	2.2K	5%	1/4W	
R207	1-249-431-11	CARBON	15K	5%	1/4W	
R208	1-249-421-11	CARBON	2.2K	5%	1/4W	
R209	1-249-417-11	CARBON	1K	5%	1/4W	
R221	1-249-417-11	CARBON	1K	5%	1/4W	
R223	1-249-423-11	CARBON	3.3K	5%	1/4W	
R224	1-249-428-11	CARBON	8.2K	5%	1/4W	
R225	1-215-430-00	METAL	2.4K	1%	1/6W	
R226	1-247-846-11	CARBON	4.3K	5%	1/4W	
R227	1-247-822-11	CARBON	430	5%	1/4W	
R228	1-249-415-11	CARBON	680	5%	1/4W	
R229	1-249-428-11	CARBON	8.2K	5%	1/4W	
R230	1-249-425-11	CARBON	4.7K	5%	1/4W	
R231	1-249-421-11	CARBON	2.2K	5%	1/4W	
R232	1-249-428-11	CARBON	8.2K	5%	1/4W	
R233	1-249-427-11	CARBON	6.8K	5%	1/4W	
R251	1-249-417-11	CARBON	1K	5%	1/4W	
R252	1-249-429-11	CARBON	10K	5%	1/4W	
R253	1-249-405-11	CARBON	100	5%	1/4W	
R501	1-249-429-11	CARBON	10K	5%	1/4W	
R502	1-249-429-11	CARBON	10K	5%	1/4W	
R503	1-249-427-11	CARBON	6.8K	5%	1/4W	
R504	1-249-427-11	CARBON	6.8K	5%	1/4W	
R505	1-249-417-11	CARBON	1K	5%	1/4W	
R506	1-249-417-11	CARBON	1K	5%	1/4W	
R507	1-249-437-11	CARBON	47K	5%	1/4W	
R508	1-249-437-11	CARBON	47K	5%	1/4W	
R509	1-249-437-11	CARBON	47K	5%	1/4W	
R510	1-215-469-00	METAL	100K	1%	1/6W	
R511	1-247-864-11	CARBON	24K	5%	1/4W	
R521	1-247-870-11	CARBON	43K	5%	1/4W	

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description				
R522	1-249-435-11	CARBON	33K	5%	1/4W	
R523	1-249-438-11	CARBON	56K	5%	1/4W	
R524	1-247-882-11	CARBON	130K	5%	1/4W	
R525	1-249-440-11	CARBON	82K	5%	1/4W	
R526	1-249-438-11	CARBON	56K	5%	1/4W	
R527	1-247-876-11	(AEP,UK).....CARBON	75K	5%	1/4W	
R527	1-249-439-11	(US,Canadian)...CARBON	68K	5%	1/4W	
R528	1-247-872-11	(US,Canadian)...CARBON	51K	5%	1/4W	
R528	1-249-438-11	(AEP,UK).....CARBON	56K	5%	1/4W	
R529	1-247-864-11	(AEP,UK).....CARBON	24K	5%	1/4W	
R529	1-249-435-11	(US,Canadian)...CARBON	33K	5%	1/4W	
R530	1-249-440-11	CARBON	82K	5%	1/4W	
R531	1-247-881-00	CARBON	120K	5%	1/4W	
R532	1-247-887-00	CARBON	220K	5%	1/4W	
R533	1-247-874-11	(US,Canadian)...CARBON	62K	5%	1/4W	
R533	1-249-440-11	(AEP,UK).....CARBON	82K	5%	1/4W	
R534	1-249-437-11	CARBON	47K	5%	1/4W	
R535	1-247-872-11	(US,Canadian)...CARBON	51K	5%	1/4W	
R535	1-247-874-11	(AEP,UK).....CARBON	62K	5%	1/4W	
R536	1-247-881-00	CARBON	120K	5%	1/4W	
R537	1-247-878-00	CARBON	91K	5%	1/4W	
R538	1-247-883-00	CARBON	150K	5%	1/4W	
R539	1-249-436-11	CARBON	39K	5%	1/4W	
R540	1-249-438-11	CARBON	56K	5%	1/4W	
R541	1-247-868-11	(AEP,UK).....CARBON	36K	5%	1/4W	
R541	1-249-435-11	(US,Canadian)...CARBON	33K	5%	1/4W	
R542	1-249-438-11	CARBON	56K	5%	1/4W	
R543	1-249-437-11	CARBON	47K	5%	1/4W	
R544	1-247-881-00	CARBON	120K	5%	1/4W	
R545	1-249-432-11	CARBON	18K	5%	1/4W	
R546	1-247-868-11	CARBON	36K	5%	1/4W	
R547	1-247-866-11	CARBON	30K	5%	1/4W	
R548	1-247-874-11	CARBON	62K	5%	1/4W	
R549	1-247-870-11	CARBON	43K	5%	1/4W	
R550	1-249-441-11	CARBON	100K	5%	1/4W	
R551	1-247-870-11	CARBON	43K	5%	1/4W	
R552	1-249-439-11	CARBON	68K	5%	1/4W	
R553	1-249-430-11	(AEP,UK).....CARBON	12K	5%	1/4W	
R553	1-249-431-11	(US,Canadian)...CARBON	15K	5%	1/4W	
R554	1-249-436-11	CARBON	39K	5%	1/4W	
R555	1-247-876-11	CARBON	75K	5%	1/4W	
R556	1-247-880-11	CARBON	110K	5%	1/4W	
R558	1-249-429-11	CARBON	10K	5%	1/4W	
R559	1-249-417-11	CARBON	1K	5%	1/4W	
R560	1-249-437-11	CARBON	47K	5%	1/4W	
R561	1-249-437-11	CARBON	47K	5%	1/4W	
R562	1-249-437-11	CARBON	47K	5%	1/4W	
R563	1-247-887-00	CARBON	220K	5%	1/4W	
R564	1-249-429-11	CARBON	10K	5%	1/4W	
R565	1-249-441-11	CARBON	100K	5%	1/4W	
R566	1-249-428-11	CARBON	8.2K	5%	1/4W	
R567	1-249-423-11	CARBON	3.3K	5%	1/4W	
R568	1-249-441-11	CARBON	100K	5%	1/4W	
R569	1-249-417-11	CARBON	1K	5%	1/4W	

Ref.No.	Part No.	Description				
R570	1-249-441-11	CARBON	100K	5%	1/4W	
R571	1-249-429-11	CARBON	10K	5%	1/4W	
R572	1-249-441-11	CARBON	100K	5%	1/4W	
R573	1-249-417-11	CARBON	1K	5%	1/4W	
R574	1-249-439-11	CARBON	68K	5%	1/4W	
R575	1-249-429-11	CARBON	10K	5%	1/4W	
R701	1-249-421-11	CARBON	2.2K	5%	1/4W	
R702	1-249-423-11	CARBON	3.3K	5%	1/4W	
R703	1-249-437-11	CARBON	47K	5%	1/4W	
R704	1-249-437-11	CARBON	47K	5%	1/4W	
R705	1-249-417-11	CARBON	1K	5%	1/4W	
R706	1-249-421-11	CARBON	2.2K	5%	1/4W	
R707	1-249-409-11	CARBON	220	5%	1/4W	
R708	1-215-439-00	METAL	5.6K	1%	1/6W	
R709	1-215-431-00	METAL	2.7K	1%	1/6W	
R710	1-215-440-00	METAL	6.2K	1%	1/6W	
R711	1-215-445-00	METAL	10K	1%	1/6W	
R712	1-249-429-11	CARBON	10K	5%	1/4W	
R713	1-249-429-11	CARBON	10K	5%	1/4W	
R714	1-249-429-11	CARBON	10K	5%	1/4W	
R715	1-249-420-11	CARBON	1.8K	5%	1/4W	
R716	1-249-409-11	CARBON	220	5%	1/4W	
R717	1-249-420-11	CARBON	1.8K	5%	1/4W	
R801	1-249-425-11	CARBON	4.7K	5%	1/4W	
R802	1-249-413-11	CARBON	470	5%	1/4W	
R803	1-249-417-11	CARBON	1K	5%	1/4W	
R804	1-249-425-11	CARBON	4.7K	5%	1/4W	
R805	1-249-436-11	CARBON	39K	5%	1/4W	
R806	1-249-429-11	CARBON	10K	5%	1/4W	
R811	1-249-437-11	CARBON	47K	5%	1/4W	
R812	1-249-430-11	CARBON	12K	5%	1/4W	
R813	1-247-895-00	CARBON	470K	5%	1/4W	
R814	1-247-895-00	CARBON	470K	5%	1/4W	
R815	1-249-436-11	CARBON	39K	5%	1/4W	
R816	1-249-429-11	CARBON	10K	5%	1/4W	
R817	1-249-417-11	CARBON	1K	5%	1/4W	
R818	1-249-425-11	CARBON	4.7K	5%	1/4W	
R819	1-249-425-11	CARBON	4.7K	5%	1/4W	
R820	1-249-413-11	CARBON	470	5%	1/4W	
R821	1-249-437-11	CARBON	47K	5%	1/4W	
R822	1-249-429-11	CARBON	10K	5%	1/4W	
R823	1-249-421-11	CARBON	2.2K	5%	1/4W	
R828	1-249-425-11	CARBON	4.7K	5%	1/4W	
R832	1-249-433-11	CARBON	22K	5%	1/4W	
R833	1-249-433-11	CARBON	22K	5%	1/4W	
R834	1-249-406-11	CARBON	120	5%	1/4W	
R835	1-249-407-11	CARBON	150	5%	1/4W	
R836	1-249-407-11	CARBON	150	5%	1/4W	
R837	1-249-407-11	CARBON	150	5%	1/4W	
R838	1-247-816-11	CARBON	240	5%	1/4W	
R839	1-249-406-11	CARBON	120	5%	1/4W	
R840	1-249-407-11	CARBON	150	5%	1/4W	
R841	1-249-407-11	CARBON	150	5%	1/4W	
R842	1-249-417-11	CARBON	1K	5%	1/4W	
R843	1-249-425-11	CARBON	4.7K	5%	1/4W	
R844	1-249-413-11	CARBON	470	5%	1/4W	
R845	1-249-413-11	CARBON	470	5%	1/4W	

Ref.No.	Part No.	Description			
R846	1-249-409-11	CARBON	220	5%	1/4W
R847	1-249-409-11	CARBON	220	5%	1/4W
R851	1-249-393-11	CARBON	10	5%	1/4W
R852	1-249-393-11	CARBON	10	5%	1/4W
R853	1-249-417-11	CARBON	1K	5%	1/4W
R854	1-249-425-11	CARBON	4.7K	5%	1/4W
R912	1-249-418-11	CARBON	1.2K	5%	1/4W
R913	1-249-420-11	CARBON	1.8K	5%	1/4W
R914	1-249-430-11	CARBON	12K	5%	1/4W
R915	1-247-842-11	CARBON	3K	5%	1/4W
R916	1-249-433-11	CARBON	22K	5%	1/4W
R917	1-249-441-11	CARBON	100K	5%	1/4W
R918	1-249-441-11	CARBON	100K	5%	1/4W
R919	1-249-425-11	CARBON	4.7K	5%	1/4W
R920	1-249-425-11	CARBON	4.7K	5%	1/4W
R921	1-249-433-11	CARBON	22K	5%	1/4W
R922	1-249-441-11	CARBON	100K	5%	1/4W
R923	1-249-441-11	CARBON	100K	5%	1/4W
R924	1-249-425-11	CARBON	4.7K	5%	1/4W
R925	1-249-425-11	CARBON	4.7K	5%	1/4W
R926	1-249-404-00	CARBON	82	5%	1/4W
R927	1-247-854-11	(US,Canadian)...CARBON	9.1K	5%	1/4W
R927	1-249-429-11	(AEP,UK).....CARBON	10K	5%	1/4W
R928	1-247-846-11	(US,Canadian)...CARBON	4.3K	5%	1/4W
R928	1-249-425-11	(AEP,UK).....CARBON	4.7K	5%	1/4W
R929	1-247-834-11	(US,Canadian)...CARBON	1.3K	5%	1/4W
R929	1-249-417-11	(AEP,UK).....CARBON	1K	5%	1/4W
R930	1-249-423-11	CARBON	3.3K	5%	1/4W
R931	1-249-420-11	CARBON	1.8K	5%	1/4W
R932	1-249-418-11	CARBON	1.2K	5%	1/4W
R933	1-249-423-11	CARBON	3.3K	5%	1/4W
R934	1-249-420-11	CARBON	1.8K	5%	1/4W
R935	1-249-418-11	CARBON	1.2K	5%	1/4W
R936	1-249-420-11	CARBON	1.8K	5%	1/4W
R937	1-249-418-11	CARBON	1.2K	5%	1/4W
R938	1-249-420-11	CARBON	1.8K	5%	1/4W
R939	1-249-418-11	CARBON	1.2K	5%	1/4W
RV41A	1-228-989-00	RES, ADJ, CARBON 47Ω			
RV41B	1-228-989-00	(US,Canadian)...RES, ADJ, CARBON 47Ω			
RV41B	1-228-990-00	(AEP,UK).....RES, ADJ, CARBON 1K			
RV42	1-230-497-11	RES, ADJ, CARBON 22K			
RV61A	1-228-989-00	RES, ADJ, CARBON 47Ω			
RV61B	1-228-989-00	(US,Canadian)...RES, ADJ, CARBON 47Ω			
RV61B	1-228-990-00	(AEP,UK).....RES, ADJ, CARBON 1K			
RV62	1-230-497-11	RES, ADJ, CARBON 22K			
RV103	1-228-994-00	RES, ADJ, CARBON 10K			
RV203	1-228-994-00	RES, ADJ, CARBON 10K			
RV901	1-230-090-00	RES, VAR, CARBON 20K/20K(REC LEVEL)			
RV902	1-238-261-11	RES, VAR, CARBON 50K/50K(BALANCE)			
RY81B	1-515-614-11	RELAY			
S11A	1-571-281-21	SWITCH, LEAF (HALF DET)			
S11B	1-571-281-21	SWITCH, LEAF (HALF DET)			
S12B	1-571-281-21	SWITCH, LEAF (ERASE PROOF SIDE A)			
S13B	1-571-281-21	SWITCH, LEAF (ERASE PROOF SIDE B)			
S14A	1-571-281-21	SWITCH, LEAF (CrO2)			

Ref.No.	Part No.	Description
S701	1-571-715-21	SWITCH, PUSH (1 KEY)(POWER)
S801	1-571-918-11	(US,Canadian)...SWITCH, SLIDE (REMOTE)
S901	1-554-596-21	SWITCH, KEY BOARD (REC MUTE (DECK B))
S902	1-554-596-21	SWITCH, KEY BOARD (◀ (DECK B))
S903	1-554-596-21	SWITCH, KEY BOARD (▶ (DECK B))
S904	1-554-596-21	SWITCH, KEY BOARD (PAUSE (DECK B))
S905	1-554-596-21	SWITCH, KEY BOARD (REC (DECK B))
S906	1-554-596-21	SWITCH, KEY BOARD (▶▶ (DECK B))
S907	1-554-596-21	SWITCH, KEY BOARD (◀◀ (DECK B))
S908	1-554-596-21	SWITCH, KEY BOARD (■ (DECK B))
S909	1-554-596-21	SWITCH, KEY BOARD (◀ (DECK A))
S910	1-554-596-21	SWITCH, KEY BOARD (▶ (DECK A))
S911	1-554-596-21	SWITCH, KEY BOARD (▶▶ (DECK A))
S912	1-554-596-21	SWITCH, KEY BOARD (◀◀ (DECK A))
S913	1-554-596-21	SWITCH, KEY BOARD (■ (DECK A))
S914	1-554-596-21	SWITCH, KEY BOARD (AUTO PAUSE)
S915	1-554-596-21	SWITCH, KEY BOARD (NORMAL)
S916	1-554-596-21	SWITCH, KEY BOARD (HIGH)
S917	1-554-596-21	SWITCH, KEY BOARD (AMS/BLK SKIP)
S918	1-571-690-11	SWITCH, SLIDE (DIR MODE)
S919	1-571-690-11	SWITCH, SLIDE (TAPE (DECK B))
S920	1-571-690-11	SWITCH, SLIDE (DOLBY NR)
SPK101	1-235-186-00	ENCAPSULATED COMPONENT
SPK201	1-235-186-00	ENCAPSULATED COMPONENT
T51	1-433-335-11	(AEP,UK)....TRANSFORMER, BIAS OSCILLATION
T71	1-433-335-11	(AEP,UK)....TRANSFORMER, BIAS OSCILLATION
T701 ⚠	1-449-420-11	(US,Canadian)...TRANSFORMER, POWER
T701 ⚠	1-449-661-11	(AEP,UK).....TRANSFORMER, POWER
T81B	1-433-334-11	(US,Canadian) ...TRANSFORMER, BIAS OSCILLATION
T81B	1-433-348-11	(AEP,UK)...TRANSFORMER, BIAS OSCILLATION
TP83B	*1-564-338-00	(AEP,UK)...PIN, CONNECTOR 4P
TP91	*1-564-508-11	(AEP,UK)...PLUG, CONNECTOR 5P
X801	1-577-101-11	VIBRATOR, CERAMIC (4.19MHz)

ACCESSORY & PACKING MATERIAL

	1-559-533-11	CORD, CONNECTION
*	3-349-005-01	CUSHION
*	3-349-028-41	INDIVIDUAL CARTON
	3-349-084-01	LABEL ((POP)-C)
	3-701-630-00	BAG, POLYETHYLENE
	3-703-450-01	(US)...INSTRUCTION
	3-750-198-11	(AEP).....MANUAL, INSTRUCTION
	3-750-198-21	(US,UK).....MANUAL, INSTRUCTION
	3-750-198-31	(Canadian).....MANUAL, INSTRUCTION
	3-750-198-41	(AEP).....MANUAL, INSTRUCTION
	3-750-198-51	(West Germany)...MANUAL, INSTRUCTION

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

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